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INTELLIGENCE AND ELECTRONIC WARFARE (IEW) STREAMLINING PROJECT

Volume III
Reference Documentation (Part 5)

November 18, 1992

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)

2. REPORT DATE
18 Nov 92

3. REPORT TYPE AND DATES COVERED
INTERIM

4. TITLE AND SUBTITLE
Intelligence and Electronic Warfare (IEW) Streamlining Project, Volume III, Reference Documentation (Part 5)

5. FUNDING NUMBERS
C OPM-91-2964
PR 02T02K

6. AUTHOR(S)
David P. Nicholas (co-compiler), Robert E. Klebo (co-compiler)

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
BDM International, Inc., 825 Diligence Drive, Suite 200, Newport News, VA 23606

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Communications-Electronics Command Intelligence Materiel Management Center (USACIMMC), ATTN: SELIM-IEW, Vint Hill Farms Station, Warrenton, VA 22186-5277

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES
Prepared under contract with U.S. Office of Personnel Management, Office of Employee Development Policy and Programs, Training Assistance and Organizational Development Division

12a. DISTRIBUTION/AVAILABILITY STATEMENT
APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

Purpose of study was to recommend improvements in logistics support for Army intelligence and electronic warfare (IEW) equipment. Report analyzes existing sustainment system and recommends a number of systemic improvements to integrate and streamline the sustainment of IEW materiel. The recommended objective concept includes centralized control of regional sustainment assets (including contracts providing sustainment) under Army Materiel Command; organizational changes to integrate soldier, civilian, and contract resources; improved distribution and control of spares; improved deployment capability; and provisions to enhance technology transfer between contractors, civilians, and soldiers.

The IEW Streamlining Study Sustainment Analysis Report consists of four volumes, some multipart. Volume IV, which is classified, may be obtained from the Defense Technical Information Center, Cameron Station, Bldg. 5, ATTN: Acquisition-OCP, Alexandria, VA 22304-6145. Study documents are as follows:

- Volume I, Sustainment Analysis Report, revised 30 Oct 92
- Volume II, Directives and Related Study Documents, revised 18 Nov 92
- Volume III, Reference Documentation (Part 1), 1 Sep 92
- Volume III, Reference Documentation (Part 2), 1 Sep 92
- Volume III, Reference Documentation (Part 3), 1 Sep 92
- Volume III, Reference Documentation (Part 4), 1 Sep 92
- Volume III, Reference Documentation (Part 5), 18 Nov 92
- Volume IV, Systems Sustainment (Part 1)(classified), 1 Sep 92
- Volume IV, Systems Sustainment (Part 2)(classified), 1 Sep 92

14. SUBJECT TERMS
intelligence and electronic warfare (IEW)
sustainment
low density
materiel
maintenance
nondevelopmental item (NDI)

15. NUMBER OF PAGES 385

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UL

IEW STREAMLINING PROJECT

Volume III

Reference Documentation (Part 5)

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Availability Codes	
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A-1	

Submitted By:

BDM International, Inc.
Newport News, Virginia

Under Contract Number OPM-91-2964 With
U.S. Office of Personnel Management
Office of Employee Development Policy and Programs
Training Assistance and Organizational Development Division

Project Title: Logistics Support
Work Order: 7064-006
Project Code: 02T02K

November 18, 1992

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The Strategic Logistics Program, Army Logistician, March-April 1991

The Strategic Logistics Program

by Lieutenant General Jimmy D. Ross

As the Deputy Chief of Staff for Logistics (DCSLOG) of the Army, I have a strong personal interest in introducing the subject of Army strategic logistics planning to readers of *Army Logistician*. This overview begins a special series on the strategic logistics program. I appreciate the *Logistician* staff's providing me, and the Strategic Logistics Agency, an opportunity to "talk about" this important new program.

The current political and economic climates are shaping the Army of the 21st century and, in turn, our logistics support concepts. Reducing the size of the national debt and the Federal budget is of the highest priority to the President and the Congress. The need for judicious use of scarce resources will therefore have a major influence on the structure of the Army's future logistics system. Other factors influencing the logistics system include emerging battle doctrine, future force structures, weapon and support technologies, and changes mandated by Defense Management Review decisions.

We envision the logistics support of the future as an integrated system that places a minimum burden on the field while increasing Army productivity. We will make the future logistics system as paperless as possible by using electronic data interchange.

The Army needs a single, dynamic logistics information system that can reach across the services to the lowest user level. Worldwide visibility of items essential to our weapon systems will be an integral part of our logistics process. Readiness will be improved by reducing the time our field commanders spend on financial management controls. Asset visibility will also provide the means of ensuring both property accountability and responsible, responsive materiel management. "Just-in-time" inventory management techniques, which will augment requisitioning, will "push" materiel to the field, thereby reducing the size of inventories and associated carrying costs.

Future logistics initiatives must demonstrate increased productivity. Great returns can be gained by standardizing processes and equipment and by integrating technology, such as computer-aided design, computer-aided manufacturing, and flexible manufacturing techniques, to the field army. Artificial intelligence is an emerging technology that holds great promise for making logistics support a system-intensive rather than labor-intensive process. We will reduce the diagnostic requirements by embedding "call-ahead" technology to coordinate supply and repair actions automatically.

Focusing on a logistics research and development program can enhance our ability to make necessary improvements in many areas. Logistics research and development needs to be institutionalized and resources applied toward those areas showing the most promise. This will enable us to explore new technologies and insert them into the logistics process in a timely, well-managed way.

The strategic logistics program was created to institutionalize and centralize the planning needed to develop the streamlined, integrated logistics system of the future. This program will be managed by the Strategic Logistics Agency to ensure that, by 2010, the Army has developed a logistics system that serves the needs of our soldiers in a highly productive and effective manner.

We must not lose sight of the troops themselves in our drive toward modernization. Your support and involvement in developing the strategic logistics program initiatives are essential for success. The Army needs you to actively participate in this process by submitting your ideas to the Strategic Logistics Agency. *Army Logistician* will publish articles that will provide details on program initiatives. The first of these begins on the next page. I look forward to sharing more information on strategic logistics program initiatives with you. **ALOG**

Lieutenant General Jimmy D. Ross is the Deputy Chief of Staff for Logistics, Department of the Army. He is a graduate of Henderson State University, Arkadelphia, Arkansas, and holds a master of business administration degree from Central Michigan University. He is also a graduate of the Industrial College of the Armed Forces, the Army Command and General Staff College, and the Army Logistics Management College's Logistics Executive Development Course.

Appendix AK

Roadmap for the Future, Army Logistician, March-April 1991

Roadmap for the Future

by Deborah L. Pollard

Current trends indicate that the Army must be prepared to respond to a broad range of potential scenarios, from short contingency operations to large-scale, high-intensity wars, over the next 30 years. The Army of the future will include a mix of heavy, light, and special operations forces in both Active and Reserve components, and it will need to maintain a proper balance among combat, combat support, and combat service support units. While joint and combined operations will continue to be emphasized, the Army will also require forces for low-intensity conflicts, counterterrorism missions, and special operations.

The organizational structure for the future force must be extremely flexible and adaptable so the Army will be ready to perform a wide range of roles and missions. To achieve the desired adaptability, Army organizations will feature such characteristics as modular design, adaptable command and control, sustainment capability and force sufficiency, and commonality of weapon systems. The Army will continue to emphasize the acquisition of high-technology weapons to achieve a qualitative advantage over potential adversaries.

To provide effective logistics support to the various levels of combat, the logistics community is faced with the challenges of—

- Developing logistics systems designed to sustain combat power and respond to the needs of battlefield commanders.
- Maintaining or increasing levels of logistics support in an environment of declining resources.
- Revising logistics processes to support emerging AirLand Battle-Future doctrine.
- Reducing the logistics burden on the field to allow more time for training and permit a greater focus on the requirements of combat missions.

Developing the Strategic Logistics Program

In the fall of 1989, the Deputy Chief of Staff for Logistics (DCSLOG), Department of the Army, presented the Secretary of the Army with a plan for modernizing logistics operations and improving logistics integration while dramatically reducing operating costs. The plan called for establishing a strategic logistics program that would explore new concepts for supporting AirLand Battle-Future doctrine, integrate wholesale and retail logistics into a "seamless" system, update technology, and modernize logistics processes for both peacetime and war. The program would create an evolutionary glide path for Army logistics to enter the early decades of the 21st century. A Strategic Logistics Agency, reporting directly to the DCSLOG, would manage the program.

This DCSLOG initiative was developed by a strategic logistics task force composed of personnel from various Army agencies. The commanders and deputies of the Army Materiel Command (AMC) and the Army Combined Arms Support Command (then the Army Logistics Center), at Fort Lee, Virginia, provided quality support. The task force—

- Forecast the environment of 2010 and beyond, based on an analysis of Department of Defense (DOD) and Army long-range planning guidance and future warfighting doctrine.
- Determined future logistics opportunities by examining completed and ongoing DOD and Army studies; conducting exhaustive interviews with military, civilian, and industrial leaders; and investigat-

ing potential applications of technology.

• Derived logistics foundations for the year 2010 and beyond by linking information about the future environment and logistics opportunities with information on logistics imperatives, AirLand Battle tenets, battlefield sustainment functions, and functions of the industrial and sustaining base.

• Developed plans to link validated logistics concepts with the Army force integration process through the Army Long-Range Logistics Plan.

• Developed and published a strawman concept for logistics in the year 2010 and beyond.

The task force melded the efforts of dozens of logistics experts and strategists into a simple, common sense approach for total quality process improvements in Army logistics. The output of the task force, together with parallel efforts in AMC and the Combined Arms Support Command, resulted in a plan that would help meet cost reductions mandated by Defense Management Review decisions. The Army Secretariat approved the proposed strategic logistics program, and the Strategic Logistics Agency was established on 19 July 1990.

Strategic Planning for Logistics

The Strategic Logistics Agency will implement the near-, mid-, and long-term goals identified for the strategic logistics program to support tomorrow's Army as it performs its evolving missions. The agency is the single integrator for the process and functional analyses required to modernize and integrate logistics functions.

The goals of the strategic logistics program are to integrate wholesale and retail logistics into a seamless system; achieve sustainment imperatives for combat logistics; and meet budgetary savings objectives resulting from Defense Management Review decisions. (The strategic logistics program is tasked with the responsibility of overcoming a $4.2-billion funding reduction allotted to the Army by Defense Management Review decisions.)

The strategic logistics program will focus on improving logistics processes where the current processes either are less than optimal or have potential for streamlining logistics functions. The program will use the latest technology—such as open-system architecture and interconnectivity environments, electronic data interchange, artificial intelligence, and robotics—to achieve a "paperless" system.

A host of core logistics functions fall under the purview of the strategic logistics program, including supply, maintenance, materiel acquisition (of spares and repair parts), distribution and transportation, and soldier services. The program is directing integrated development of major systemic improvements in these logistics functions.

The strategic logistics program is using total quality management (TQM) methodology to develop a single Army Logistics System. This methodology includes such TQM techniques as rapid prototyping, quantum process improvements, and continuous process evaluation.

Participation by users is essential to achieving the program's objectives throughout the materiel life cycle, from conceptual stages to the development of functional requirements, and on through operating capability. The resulting process improvements will be implemented incrementally. More than 21 individual logistics design characteristics have been identified for proof-of-principle testing during fiscal years 1990 through 1995.

Today's environment is commodity oriented and features aging technology. Decisionmaking is hampered by incomplete and often suspect item management information. The decisionmaking process is also hurt by limited asset visibility. This results in resource and inventory imbalances that adversely affect the availability of weapon systems. The Strategic Logistics Agency plans to develop a standard system for core logistics functions based on the weapon system management concept. This system will be flexible enough to meet the requirements of different scenarios, mission-oriented, fast, and interactive, and will provide accurate, comprehensive, and readily available data. The Army will then have the asset visibility and scenario information it needs to make stock allocation decisions that will maximize the operational availability of weapon systems at the least cost.

Near-Term Initiatives

Near-term (through fiscal year 1995) strategic logistics program initiatives will transform the existing separate wholesale and retail systems into a seamless system that effectively spans the continuum from "the foxhole to the factory." When these initiatives are completed, the distinctions between wholesale and retail as we know them today will disappear. Integration will enhance supply, maintenance, transportation, and distribution management by reducing order and shipping time (OST), improving materiel returns, basing provisioning on real-time data base inputs, eliminating excess stock, and reducing stockage of certain repair parts.

Work is underway to reduce OST, which is a major factor used in computing stockage levels. The Strategic Logistics Agency plans to introduce elements of a new requisitioning system to support units deployed to Operation Desert Shield, as well as units in Europe and the continental United States, during fiscal year 1991. These enhancements to current standard information systems will allow the systems to operate with near-real-time speed in processing transactions and will reduce the order segment of OST to less than 1 day. The agency anticipates using satellite communications technology to supplement telephone modems to further enhance the speed of operations. A shorter supply pipeline will make it possible to reduce stockage levels and inventory investment throughout the Army. By the end of fiscal year 1994, it may be possible to reduce OST for repair parts by 20 days and stockage levels by approximately 50 percent.

Other near-term initiatives will carry out short-range efficiency enhancements mandated by recent Defense Management Review decisions. One of these initiatives will convert the requisitioning and repair of depot-level reparables from procurement funding to stock funding. The Army is implementing this conversion in three phases. Starting in October 1990, AMC began procuring depot-level reparables through the stock fund. In July 1991, depot-level maintenance of reparables will be paid for through the stock fund. In January 1992, all customers will be required to use the stock fund to pay for their reparables—there will be no more "free issues."

To develop confidence in this method of doing business, the Army approved a division-level test that began in January. This test will ensure that the implementation plan and supporting systems have been properly evaluated, analyzed, and designed before mandatory implementation of stock funding begins in January 1992. The Strategic Logistics Agency anticipates that stock funding of depot-level reparables will reduce operations costs by a net of 10 percent.

The concept of weapon system management is central to the strategic logistics program. Under the weapon system management concept, managers will make repair, distribution, redistribution, and procurement decisions using input from the requirements of combat commanders, thus enhancing the availability of weapon systems in the units where they are needed most. The Strategic Logistics Agency will integrate logistics support requirements for this concept.

By the end of fiscal year 1994, weapon system availability models will be used to determine stockage levels. These availability models will also determine the optimal maintenance workloads for depots, contractor repair facilities, and units in the field. These models will also use refined training and field usage data to develop replenishment and war reserve requirements. Total asset visibility, including assets in transit, will allow system managers to make effective and efficient redistribution decisions before pursuing alternatives.

Mid-Term Initiatives

Mid-term initiatives under the strategic logistics program include developing logistics decision support applications; implementing a single stock fund; providing concepts for enhancing the combat service support control system; and working on logistics doctrine and systems changes required by the Office of the Secretary of Defense's corporate information management initiative.

Long-Term Initiatives

For the long-term, the Strategic Logistics Agency will soon begin to conduct a broad, comprehensive analysis of logistics requirements for the year 2000 and beyond. From this analysis, the Agency will develop functional statements of requirements for the future logistics system. These functional statements will become, in effect, the master plan for logically developing the next generation of logistics management information systems. These systems will be an integral part of the emerging DOD consolidation of logistics functions at the national level.

As the Army progresses into the 1990's, the strategic logistics program will design logistics modernization and integration initiatives to keep pace with force requirements effectively and efficiently. The result will be a more lethal, deployable, and versatile Army for the next generation. **ALOG**

Deborah L. Pollard is a quality assurance specialist detailed to the Army Strategic Logistics Agency at Fort Belvoir, Virginia, from the Army Depot System Command in Chambersburg, Pennsylvania. She is a graduate of the Army Materiel Command quality and reliability assurance intern program and holds a bachelor's degree from Indiana University of Pennsylvania.

Appendix AL

Total Asset Visibility, Army Logistician, May-June 1991

Total Asset Visibility

by Timothy Yeager and Alan F. Estevez

A number of recent newspaper articles have asserted that the Army was having trouble keeping track of its spare parts while moving equipment to Saudi Arabia for Operation Desert Storm. According to these reports, the problem was caused in part by the lack of a good central inventory system. The lack of a comprehensive central inventory, or asset visibility, system was not news to the Department of the Army. In fact, in 1989 the Army's Strategic Logistics Systems Task Force, a group of logistics experts assembled to analyze Army logistics for the year 2010 and beyond, had reiterated that "vastly increased asset visibility" was key to developing an integrated logistics system over the long term.

In 1990, the Department of Defense (DOD) announced its Defense Management Review decisions (DMRD's). These decisions are designed to produce near-term savings by consolidating similar functions among the military services. Many of the DMRD's identify asset visibility as a significant element in achieving DOD's short-term logistics objectives. For example, DMRD 901 cites "visibility of retail and operating stocks" as a means of reducing Army supply system costs; DMRD 927 mandates that wholesale and retail logistics be integrated, which will require increased visibility of the Army's inventory. The message is clear: The Army needs asset visibility!

Actually, the Army already has asset visibility, but it is fragmented and limited in scope. As outlined in AR 710-3, Asset Transaction Reporting System, the Army has several management information systems that maintain visibility over a majority of the Army's inventory. For example, the continuing balance system-expanded (CBS-X) maintains visibility of all major end items (supply class VII) with reportable item control code 2; the selected items management system-expanded provides visibility of selected repair parts (class IX); and the worldwide ammunition reporting system captures visibility of all ammunition (class V). A variety of systems, such as the DOD small arms serialization program and DOD radiation testing and tracking system, provide serial number visibility of selected items within the Army inventory. Lastly, the commodity command standard system (CCSS) is a repository of wholesale asset data, although this information is compartmentalized by functional area.

What the Army does not currently possess is a single, authoritative source for tracking its total inventory. A user must query several different systems in order to determine onhand balances for all of the items that make up one weapon system. In short, the Army's picture of asset visibility is highly disjointed.

In July 1990, the Strategic Logistics Systems Task Force became the Strategic Logistics Agency (SLA), which then assumed responsibility for implementing several of the DMRD's. Recognizing the need for better asset visibility, SLA is developing total asset visibility processes and capabilities that will ultimately provide near-real-time visibility of the Army's inventory from factory to foxhole. The criteria for developing such a program are clear: Achieve the savings mandated by the DMRD's to realize maximum near-term paybacks while at the same time minimizing risks in the developmental process.

To meet these goals, both existing and emerging processes and capabilities are being used to obtain visibility of Army assets, whether they are in the hands of soldiers; in storage at a retail stockage point, depot, or wholesale stockage point; or moving between their source and destination. In order to minimize risks, total asset visibility is being developed and evaluated using total quality management principles, including a proof-of-principle demonstration and rapid prototyping techniques.

It is anticipated that total asset visibility will generate tremendous savings for the Army by supporting other SLA initiatives, such as readiness-based maintenance and stock funding of depot-level reparables, as well as the existing requirements determination process. Savings can also be achieved by streamlining current Army inventory control procedures. Ultimately, total asset visibility will evolve as an interactive network that provides Army managers and decisionmakers with the capability to manage and control assets in response to national needs.

The Army currently manages class VII items more effectively than any other class of supply. Under the centralized management of class VII, major end items are tied precisely to the Army force structure through the interface between the requisition validation system and CBS-X. The key class VII management system, CBS-X, currently interfaces with 18 of the 24 existing retail and wholesale supply systems that maintain supply transactions or asset information. The SLA concept for total asset visibility builds on the principles already successfully demonstrated in class VII management. It extends those principles to the other classes of supply, links asset data to a commonly defined Army force structure, and makes it possible to synchronize data in a building-block approach.

By using the class VII centralized information management processes, total asset visibility will extract transactions from existing supply systems to track assets by weapon system. Data sources and collection for the total asset visibility data base will not be readily apparent to the user (being "transparent") and will not create additional reporting requirements. While SLA's total asset visibility concept proposes to build on this class VII management foundation, it goes one step farther by supplementing the centrally managed data base with decentralized technology that can "reach through" other Army automated logistics systems to capture additional data.

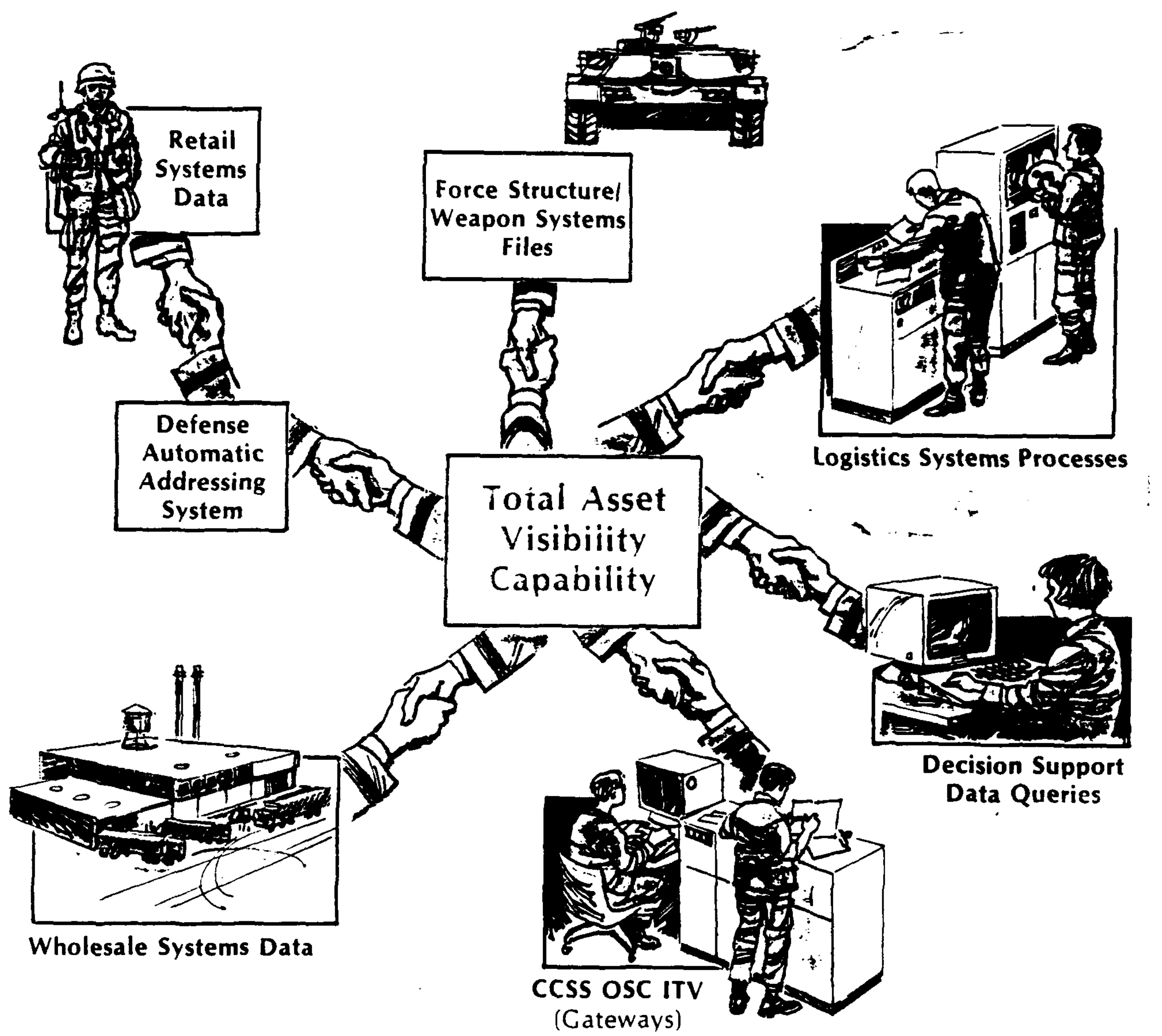
SLA's total asset visibility concept was evaluated in a proof-of-principle demonstration that began 1 October 1990 and continued through 28 February 1991. The demonstration provided visibility of more than 120 class V, VII, and IX items for the multiple-launch rocket system (MLRS), using both centralized and decentralized technologies. Centralized information management processes were demonstrated by extracting updates on transactions from the standard property book system-redesign for retail class VII items, the standard Army intermediate level system and the direct support unit standard supply system for retail class IX items, the standard Army ammunition system for retail class V items, CCSS for wholesale class VII and IX items, and the standard depot system for wholesale class V items.

These transactional updates were tied to the Army force structure, which was determined through the Army authorization documents system, force accounting system, and customer information control file. The associated support items of equipment listed in the Army's basis of issue plans were used to configure the updates for individual weapon systems. Class IX relationships to weapon systems were coordinated with the Army Materiel Command (AMC)

Materiel Readiness Support Activity, AMC's major subordinate commands, and materiel developers. Once tied to the Army force structure and configured by weapon system, transactional updates were posted to a centrally managed data base.

The proof of principle demonstrated the use of decentralized technology by "reaching through" to selected query sites to obtain additional data. A "gateway" to the Army Missile Command (MICOM) at Redstone Arsenal, Alabama, was featured to capture MLRS procurement information from the CCSS. A second gateway, to the objective supply capability (OSC) data base currently located at the Army Aviation Systems Command (AVSCOM) in St. Louis, Missouri, was used to retrieve class IX asset balances for repair parts located at Fort Hood, Texas. Total asset visibility also provided visibility on the locations of in-transit assets by accessing a U.S. Transportation Command in-transit visibility (ITV) system prototype. Since the OSC and ITV systems are still under development, user-transparent direct links could not be established during the proof of principle. However, the technology to complete direct connections was tested and will be put in use as those two systems evolve.

The capability of total asset visibility to provide support to decisionmakers was also demonstrated during the proof of principle. Online access was available at the Systems Integration and Management Activity (SIMA)-East, SIMA-West, and



SLA's total asset visibility concept.

MICOM. This access permitted users to query the total asset visibility data base as well as to obtain data from the gateway sites. Total asset visibility demonstrated its application support capabilities by passing visibility data for onhand serviceable and unserviceable items to the proof-of-principle demonstration for readiness-based maintenance.

Test and evaluation of the proof-of-principle demonstration for total asset visibility was critical. Testing was conducted in four separate segments. Segment one evaluated the accuracy of the total asset visibility data base by comparing a sample of the positions of onhand assets with both the accountable records and the physical inventory of onhand assets. This provided an assessment of how accurate the transactional update process was and how timely the data were. Segment two assessed the communications capabilities of the total asset visibility network. Communications links were tested for their responsiveness and their ability to expand to a wider base of users. Segment three examined the design of the total asset visibility data base. The data base was tested to ensure it could operate in an open systems architecture. The evaluation of these three segments was performed by the Army Information Systems Engineering Command and its contractor, Engineering and Economics Research, Inc.

Test segment four assessed how well total asset visibility functioned. In this segment, the total asset visibility menus and screens were evaluated and a survey was conducted to determine the ability of total asset visibility to provide support to management decisions. The evaluation of segment four was performed by MLRS item and program managers and representatives from the Army Materiel Systems Analysis Activity (AMSAA). AMSAA also conducted an independent evaluation of the results of the proof-of-principle demonstration.

Planning for a total asset visibility prototype began during the proof of principle. Implementation of an operational prototype is scheduled for the fourth quarter of fiscal year 1991. The target date for completing the full-scale development and fielding of total asset visibility is the end of fiscal year 1994.

The lessons already learned from Operation Desert Storm clearly show the Army's need for total asset visibility—and right now, not just in the future. Asset visibility helps ensure that the right item is in the hands of the soldier when needed. Effective inventory management also frees critical logistics assets to provide efficient combat service support.

While Operation Desert Storm has made the immediate benefits of asset visibility clear, the long-range applications cannot be overlooked. The Army

must adapt to an environment of limited resources while at the same time maintaining a well-trained, well-equipped, combat-ready force. This can only be accomplished by efficiently and effectively managing Army programs and resources. Asset visibility is a key tool in enabling the Army to meet this challenge.

The Strategic Logistics Agency concept for developing total asset visibility provides the Army with the means to better manage its inventory. In short, total asset visibility will lay the foundation for both our current requirements and the future of Army logistics. ALOG

Timothy Yeager is a logistics management specialist assigned to the Army Strategic Logistics Agency at Fort Belvoir, Virginia, and is the team leader of the Total Asset Visibility initiative. A graduate of the Army Materiel Command supply management intern program, he holds a B.S. degree in accounting from Messiah College, Grantham, Pennsylvania.

Alan F. Estevez is a supervisory traffic management specialist on a Logistics and Acquisition Management Program developmental assignment at the Strategic Logistics Agency from the Military Traffic Management Command, Falls Church, Virginia. He is a graduate of the Army transportation management intern program and holds a B.A. degree in political science from Rutgers University.

Appendix AM

Stock Funding of Depot-Level Reparables, Army Logistician, July-August 1991

Stock Funding of Depot·

Among the major near-term projects undertaken as part of the Army's strategic logistics program, possibly the most complex is converting the financing of all secondary items now funded by procurement appropriations to the Army stock fund. This change is not just a matter of accounting; it will have a significant effect on all Army activities because it will require customers to pay for depot-level reparables rather than receive them as free issues. Everyone in the Army should know what stock funding of depot-level reparables is, how it will work, and what impacts it will have in the areas of supply, finance, transportation, and maintenance.

The decision to institute stock funding of depot-level reparables is a result of the Defense Management Review process, which was established by the Office of the Secretary of Defense (OSD) on 1 April 1989 to develop initiatives for improving efficiency in the Department of Defense (DOD). Defense Management Report decisions (DMRD's) 904 and 904C directed the Army and the Air Force to stock-fund all reparable items previously funded by PA2 (secondary item procurement appropriations) accounts. DMRD 901 further directed that all costs for, or directly related to, stock-funded items be included in the price paid by customers. These costs include personnel, transportation, storage, and other associated costs.

(OSD also directed that the Army stock fund be incorporated into the Defense Business Operations Fund and renamed Supply Operations, Army. While logisticians should become familiar with these terms, this article will use Army stock fund terminology to avoid confusion.)

A reparable item is a class IX spare part that can be removed from an end item and economically repaired to a serviceable condition. A field-level reparable is a class IX secondary item that is repaired at the direct support or general support maintenance level. Field-level reparable secondary items are not supplied from the depot level and do not require a depot-level decision to wash them out of the logistics system as nonreparable. A depot-level reparable (DLR) is an item that must be repaired at the depot level, or the wash-out decision must be made at the depot level. Examples of DLR's are components and major assemblies such as engines, transmissions, periscopes, printed circuit boards, and modules.

The Army stock fund has historically purchased such class IX field-level reparables and consumables as fuel, clothing and textiles, food, medical and dental supplies, and common hardware. PA2 funds, on the other hand, have been used to pay for DLR's. These procurement-funded items, which are mostly high-dollar items, are currently issued to Army customers at no cost to the customer.

The Army Stock Fund

The Army stock fund (ASF) is a revolving working-capital fund designed to finance supply pipelines between suppliers, or vendors, and the ultimate user, or customer. The ASF operates much like a commercial business in that it purchases supplies from vendors with stock funds and sells those supplies to customers. Like the private sector, the ASF has separate wholesale and retail elements. The retail stock fund portion of the ASF supports operations at the retail, or unit and installation, level and is replenished by funds from customers. The wholesale stock fund portion of the ASF supports operations at the wholesale, or depot, level and is replenished by the retail stock fund and by other customers.

Stock-fund operating obligation authority apportioned by the Office of Management and Budget allows the Army to order supplies and to pay for them with money drawn from the stock fund. Purchases of war reserve items and initial spare and repair parts for new equipment are made with procurement funds appropriated by Congress.

The Defense Logistics Agency and the other armed services operate stock funds to procure the supplies they manage. Army customers may order supplies directly from any DOD stock fund and generally use Army retail stock funds to pay for them.

The Navy Experience

In the early 1980's, the Navy began a test of stock-funding of DLR's. The Navy believed that com-

.evel Reparables by Kenneth L. Moore

manders in the field would have more incentive to return DLR's for repair if they were required to pay for replacements and knew their costs would be offset only by the credit given for the returned unserviceable item. The Navy also felt that stock-funding of DLR's would provide logisticians with the flexibility to procure, repair, or reprogram to meet demands.

The Navy's DLR's were purchased with procurement appropriations, but they were repaired with program 7 maintenance (P7M) funds. Any changes in funding required congressional reprogramming. With both procurement and repair being financed by the stock fund, however, the logistics manager could elect to either buy a new item or repair an existing one without seeking approval from a higher level.

During the test's first year (1981 to 1982), the Navy reported a 23-percent increase in materiel availability and a 12-percent increase in returns of unserviceable DLR's to the wholesale level. Customer waiting times were reduced by 25 percent, back orders by 13 percent, and customer requirements by 10 percent.

Two of these results attracted the interest of the Army: the 12-percent increase in unserviceable returns, which meant more requirements were being satisfied by repairs and fewer by procurements; and the 10-percent reduction in customer requirements, which indicated that only items that were truly needed were being ordered and that more repairs were being performed at lower levels. Both of these results contribute to an overall reduction in inventories.

The Army Concept

The Strategic Logistics Agency (SLA), under the supervision of the Office of the Deputy Chief of Staff for Logistics, Department of the Army (DA), received the charter to implement Army stock funding of DLR's. Because the conversion to stock funding is a very complex process—one that crosses the boundaries between wholesale and retail logistics systems in supply, maintenance, transportation, automation, training and marketing, and finance—SLA established ad hoc work groups that included representatives from DA headquarters and the Army's major commands (MACOM's). The MACOM representatives ensured that MACOM concerns were considered during the development of the implementation plan.

The Army's plan for stock funding DLR's is in line with OSD initiatives to foster a more businesslike attitude in defense logistics. The Army plan will provide sound and timely management of Army resources while emphasizing OSD's objectives of capturing total costs and maximizing efficiency within and among the armed services.

The logistics system is not being redesigned—the OSD guidance was to minimize changes to the current logistics system when implementing stock funding of DLR's. Changes that must be made to various automated systems will for the most part be transparent to the user. Future improvements to the transportation system will allow the Army to track unserviceable items from turn-in to reception and processing at the depot.

Because of some inconsistencies in cataloging and other management decisions, some DLR's are currently stock-funded and some consumables funded by PA2. Under stock funding of DLR's, all items, including those previously funded through the PA2 accounts, will be realigned into two categories, reparables and consumables, under the ASF account.

The reparable category will consist of items having a source, maintenance, and recoverability code in position four of D (lowest maintenance level capable of complete repair is depot level) or L (repair restricted to a designated specialized repair activity); items with an automatic return item code of C (critical to the wholesale level), E (in short supply at the wholesale level), R (in excess at the wholesale level), or S (identified as special project requirements at the wholesale level); and items that have a depot repair program. The consumable category will contain secondary items that do not meet the criteria to be a DLR. The Army Materiel Command will designate items as reparable or consumable.

Under stock funding of DLR's, credit will be given to wholesale customers, including retail stock funds, for turning in both serviceable and unserviceable stock-funded DLR's. Credit will be granted on receipt of the shipping document (FTM), except in U.S. Army, Europe (USAREUR), where credit will be granted on turn-in to the European Redistribution Facility. No credit will be given by the wholesale level for obsolete items. Operation and maintanance, Army (OMA), customers will receive immediate credit upon turn-in of items to the supporting standard Army intermediate level supply (SAILS) system activity. (NOTE: At presstime, the Comptroller of the Department of Defense directed that, because of uncertainty about the amount of items being returned to the stock fund, no credits be given for returned material except for fuel. This policy is effective until further notice.)

The Army is instituting stock-funding of DLR's in three stages. Since last 1 October, all DLR's have been procured through the ASF while free issues to retail customers continue through stock fund withdrawal authorization. As of 1 July, all DLR maintenance actions at the wholesale level will be funded by the ASF. And on 1 April of next year, free issue will end for all replenishment. After that date, retail customers will reimburse the ASF for all DLR's requisitioned, except for initial issues and war reserve materiel. Initial issues will continue to be free issues through stock fund withdrawal authority during fiscal year 1992. In subsequent years, initial-issue spares will be bought from the ASF by procurement accounts and provided as free issues to Army customers.

The most significant of these milestones for customers is 1 April 1992, when there will be no more free issues. After that date, everything ordered that is coded as an Army secondary item will be paid for using the ASF. Every time a demand is placed on the system, the user's operating account will be reduced by that amount. Stock funding of DLR's means that the customer—the ultimate user—will buy what he uses. For example, a customer requiring a $7,000 replacement engine will pay for the DLR from his own funds.

Impact on Supply

The effective date for realigning secondary items with: the ASF will be 1 April 1992. The realignment will correct all improperly coded items in the two categories of consumables and reparables. To illustrate the magnitude of the realignment, there are currently some 318,000 consumable lines that account for about $2 billion in annual sales.

There are about 37,000 DLR's that account for approximately $6 billion in annual issues. These "free-issue" lines represent such high-dollar items as engines, transmissions, transfers, and aircraft and signal components. They make up 12 percent of all the lines managed by the Army but 76 percent of the cost of all issues of Army-managed secondary items.

Perhaps the most sensitive issue in the changeover is the status of dues-out from the wholesale level to the retail level as of 1 April 1992. On that date, all requests, including those previously ordered, must contain a valid fund citation. The Army Combined Arms Support Command at Fort Lee, Virginia, has developed an automated program that will assist units in identifying and validating those items currently due out from the wholesale level. Units will start to validate these dues-out and submit requests for canceling those items no longer required. OSD has authorized partial central funding (in the form of stock fund withdrawal credits) for these back orders. Each requisitioner must ensure that all requisitions are valid so that the authorized funding will cover the due-out requirement.

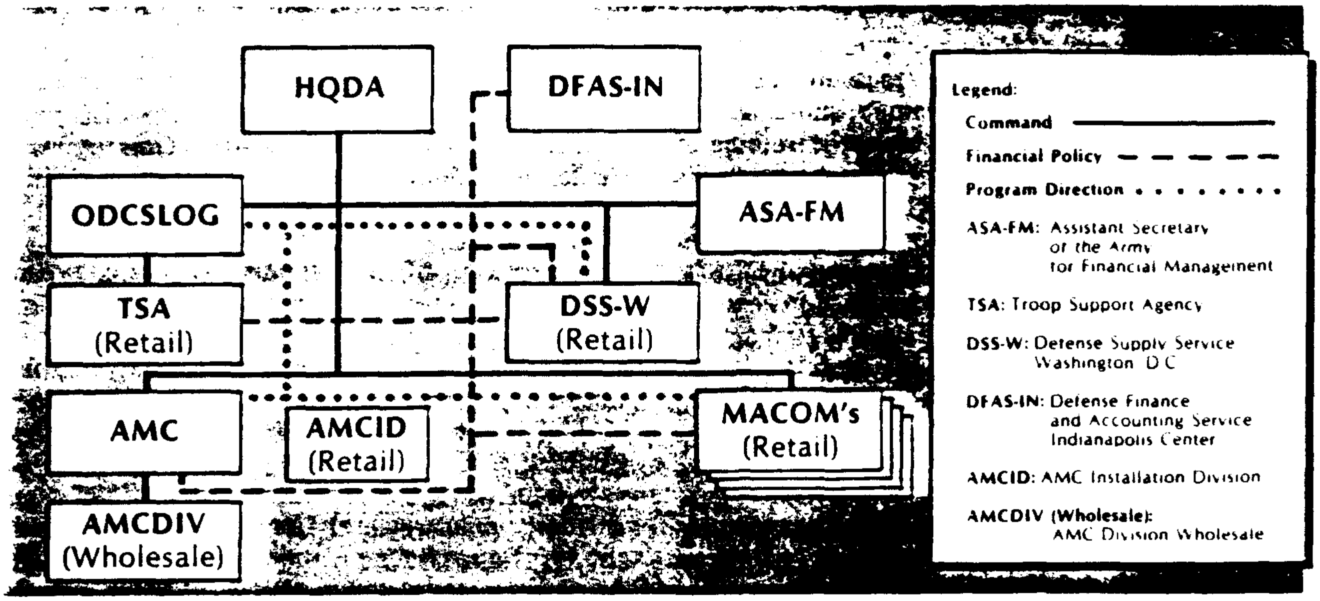
Impact on Finance

Beginning in April 1992, retail-stock-fund activities will be billed at the standard price for DLR's listed on the Army master data file (AMDF). The standard price will be based on the cost of acquiring the item, plus ASF surcharges. Surcharges are the costs to the wholesale level of managing, procuring, stocking, issuing, and transporting DLR's. Stock-fund activities will receive credit from the wholesale stock fund when the appropriate inventory control point receives and processes the notification of DLR shipment (except for USAREUR, which will receive credit upon turn-in to the European Redistribution Facility). This method of granting credit by the wholesale stock fund before actual receipt of the DLR is a policy change approved by OSD.

Here is an example of how the process will work. An item is procured from industry for $50,000. A surcharge of $10,000 is then added to cover all transportation charges and overhead costs, which makes the standard price of the item $60,000.

When an unserviceable item is turned in and processed, the customer will receive credit equal to the standard price minus all surcharges and the repair and wash-out cost. The percentage of the credit will vary by commodity but will likely be in the range of 50 to 60 percent of the standard price. The net cost to the customer will be the difference between the standard price and the credit received. The key factor is that the unserviceable item must be put back into the retrograde pipeline as quickly as possible so that the customer will have sufficient funds to support his mission.

If the customer is supported by the direct support



□**The organizational structure of the Army stock fund.**

unit standard supply system, he will receive credit from the tactical unit financial management information system (TUFMIS) as soon as the unserviceable item is processed. MACOM's will have the option of passing credit through TUFMIS to the customer or accumulating credit (buying power) and distributing it as needed.

The direct support unit receives its credit immediately on turn-in of the item to the stock fund at the corps or installation level, which operates under the SAILS system. As the item is processed through the SAILS system, a document (DIC FTM) is generated that states the item is ready for shipment to the wholesale level. The FTM is sent to the wholesale level, where credit for the unserviceable item will be granted to the retail stock fund within 7 to 14 days. This process will allow all levels to maintain their funding capability in a timely manner. There will be safeguards built into the system to protect both wholesale and retail levels from problems in the credit process.

Impact on Transportation

The Army's credit and billing policies are linked to retrograde management. Army standards and procedures for processing and moving secondary items through the distribution system will include improvements that will track assets in the pipeline, establish priority designators for retrograde shipments, ensure prompt reporting to all echelons of the Army, and ensure timely credit to the various levels.

The success and solvency of both wholesale and retail stock funds will depend on improved timing in giving credit for returned DLR's, processing receipts, and making monthly reconciliations with activities at all levels. Stock funding of DLR's will require the ability to manage the pipeline of returned DLR's through visibility of both serviceable and unserviceable assets. To avoid delays in granting credit and the resulting cash flow problems in the ASF, DLR's and their accompanying documentation must be received and processed in a timely manner at all levels.

It is envisioned that the retrograde process will have a "reverse" order and shipping time in terms of days. Standards will be established and measured from the time the item is turned in by the customer until it is received and processed at the depot. Transportation costs for stock fund materiel will be included in the ASF surcharge. Shortages of OMA transportation funds at the shipper level will no longer be a problem for returning stock-funded materiel.

Impact on Maintenance

Stock funding of DLR's will not require a new maintenance structure or major changes to maintenance policy. The implementation plan requires that maintenance managers make smart "fix-or-buy" decisions. Maintenance and supply managers at all echelons will need to be aware of the financial impact of converting from "free-issue" appropriation funding to stock funding. The amount of funds provided to field commanders for day-to-day operation and maintenance of equipment is based on the assumption that maintenance will be performed at the lowest appropriate and authorized level and that unserviceable items will be returned to the source of supply in a timely manner.

Proper maintenance techniques, troubleshooting, fault isolation, and use of test, measurement, and diagnostic equipment to determine required repairs take on added importance and make the training of maintainers critical. Materiel management centers (MMC's) at the retail level will need to assess the impact of stock funding, focusing on resources needed to accommodate stock funding of DLR's.

Under the previous funding strategy of free-issuing DLR's, a customer had little incentive to diagnose and repair a malfunctioning DLR; he could simply requisition a replacement from the supply system. Under stock funding, the customer will reimburse the supply system for a replacement, as is now done for consumable parts. This requirement should provide the necessary incentive for maintenance activities to make additional diagnoses and repair malfunctions until the DLR is clearly beyond the unit's capability to repair. DLR's evacuated to the general support and depot maintenance levels will very likely be in a more advanced state of disrepair and thus more difficult and time-consuming to repair.

The impact of stock funding may lead to changes in general support and depot maintenance workloads. The complexity of their workloads may increase and the quantity of unserviceable items being received for repair will likely decrease. The depot-level repair process will be, more than ever, the Army's primary resupply source for DLR's. Because great savings can be realized by repairing rather than buying, Army policy calls for repairing all available unserviceable assets for which a requirement exists before purchasing new ones.

Training and Marketing

It is critical to the success of stock funding of DLR's that the program function correctly from the very first day. Soldiers and civilian workers must have the right information, know what is expected of them, and have the procedures to perform their tasks. SLA has developed a videotape on the concept of stock funding DLR's, which was distributed to the field in March. This tape should be shown down to the unit level, both to train soldiers and to obtain feedback for developing MACOM implementation plans for stock funding.

SLA is also developing a training program, containing lesson plans, training aids, and exportable training packages, that can be used to prepare personnel at the retail level for the change to stock funding. Starting in June, five 3-person mobile training teams will visit the MACOM's to provide training down to the MMC level. Each team will be assigned to visit specific organizations and provide onsite training to as many workers, managers, and supervisors as the organization desires within a 3-to 5-day period. Each team will include experts in supply, maintenance, and finance. The Army Quartermaster Center and School at Fort Lee will establish a training and marketing task force to oversee the mobile training teams.

The concept of stock funding DLR's is already being taught in some service schools; others will start instruction this year. A "Commander's Pocket Guide" now being developed will identify the purposes, objectives, implications, and critical leadership responsibilities underlying the implementation of stock funding.

A demonstration of stock funding of DLR's is currently underway at the 2d Infantry Division and the 19th Support Command in Korea. This test will not involve "real dollars." It will use a parallel automation system operated by the test contractor to identify systemic problems, analyze feedback from soldiers and commanders, document system change requirements, and evaluate resource requirements. Results of the test will be used to refine plans for implementing stock funding Army-wide.

Stock funding of DLR's will improve management of secondary items. Moving and realigning funds will be easier, and the buyer-seller relationship of a working capital fund will provide needed financial incentives for efficiency. Instead of one fund to procure and another to repair, the ASF will finance both functions at the wholesale level. The wholesale repair facilities will repair only DLR's that can be sold by the ASF to its customers; inventory growth will be curtailed; customers will be more cost-conscious when placing orders for high-dollar items; and the retrograde pipeline will receive more intensive management.

The success of stock funding DLR's depends on Army-wide awareness and support. The old adage of "readiness at any cost" is no longer applicable. The Army of the future must realize that its force structure will diminish and resources will be less than in recent decades. Stock funding of DLR's offers greater flexibility for commanders, leaders, and managers to make efficient decisions to accomplish tomorrow's mission. **ALOG**

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Appendix AN

Objective Supply Capability, Army Logistician, September-October 1991

Objective Supply Capability

by Todd Wagenhorst

The Strategic Logistics Agency is working with other Army activities to streamline requisitioning and speed support to customers.

During Operations Desert Shield and Desert Storm, time and distance factors and aging technology combined to severely stress the Army Logistics System. The biggest challenge was filling the overwhelming volume of requisitions submitted by units in Southwest Asia. At their height, requisitions averaged 12,000 per day. The air line of communication to the Persian Gulf region was approximately 20 days, of which 10 to 12 days were needed simply to get a requisition out of the theater. The cost of operating this supply pipeline was $23 million each day! Yet, because of a lack of asset visibility, many requisitions were passed to the United States when the needed items were already positioned in Saudi Arabia.

In the current supply and maintenance environment, each request initiated at the user level may be processed through several, sequential, retail-level supply systems before it is received at the wholesale level of supply. As a user's requirement moves through the various levels, it may be satisfied; it may be joined with the requirements of other users and passed on to the next level as part of a single, larger requirement; or it may be passed to the ultimate supplier as originally submitted. If user requirements are automated, they are submitted through an exchange of magnetic media; if they are not automated, they are submitted through a manual exchange of paper documentation. Requests may take up to 14 days after submission to reach the national supply point. Existing and emerging systems lack all of the features needed to substantially increase the speed of processing.

The Army needs a concept for streamlining the requisitioning process that will achieve realistic cost savings while increasing the efficiency of the logistics system. Outdated technology, batch processes, manual processing, and administrative procedures that do not contribute directly to the movement of information or materiel all must be reduced, bypassed, or eliminated. A new system architecture is needed that can provide immediate processing of requests from the customer to the source of supply, furnish the status of each request to the customer, and ensure that locally available assets are issued before a request is passed to the next level of supply.

The Army's solution to this challenge is the objective supply capability (OSC). By using proven communications and advanced automation techniques, OSC will modify the existing supply process to permit same-day processing of customer supply requests; provide customers with the immediate status of their requests; and ensure that a lateral search and issue of all available assets on the customer's installation or within his geographical area is made before unfilled requests are passed to the wholesale-level supply system. The resulting reduction in order time will enhance unit readiness, increase inventory turnover, and reduce inventory investment.

The OSC is actually a collection of minor modifications to existing standard Army management information systems (STAMIS), combined with an electronic gateway that links the operation of those systems. Because of the gateway, unit-level supply and maintenance customers are presented with what appears to be a seamless, near-real-time supply system.

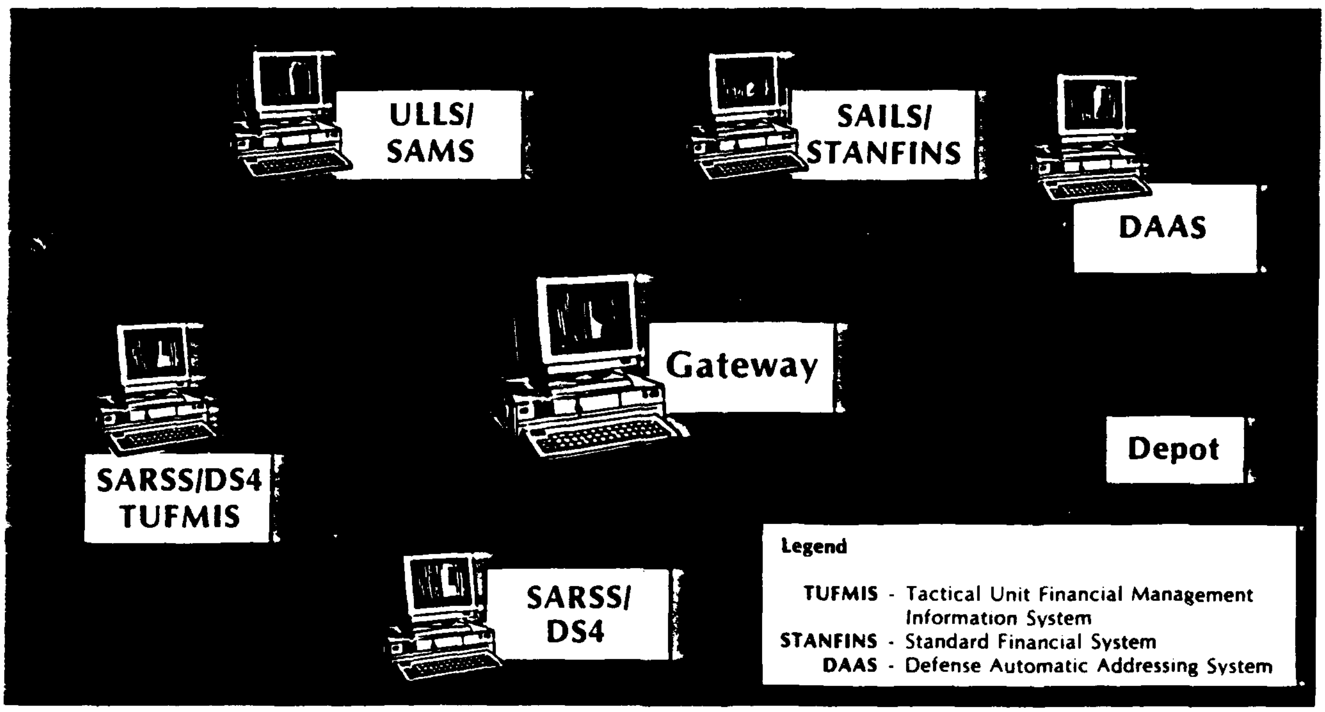
While OSC interacts with the unit-level logistics system (ULLS), standard Army maintenance system (SAMS), standard Army retail supply system-objective (SARSS-O), direct support unit standard supply system (DS4), and standard Army intermediate level supply (SAILS) system, it will not replace any of their functions or add significantly to their processing requirements. Instead, OSC will act as an executive agent for the requisitioner by rapidly locating the stocks that will most expeditiously fill his order.

Under the OSC, the retail STAMIS will be enhanced to provide customers with "same-day" processing of requests and requisitions to the various sources of supply through the electronic gateway. For example, a prescribed load list clerk will still use ULLS to request repair parts. However, each request will be sent directly to the gateway for processing, rather than being added to the daily batch of requests passed to the direct support unit. Once the clerk's request is received at the gateway, a lateral search and issue process will ensure that locally available items are issued before the request is forwarded to the next source of supply. Manual exchange of parts requests on magnetic media will still be available as a backup system.

Three functional capabilities are being added to existing and emerging supply systems to create the OSC. Communications interface and internal process changes will provide ULLS and SAMS users with near-real-time processing of requests and order status by means of the gateway. Other communications and internal process changes will provide asset balance information from DS4 and SAILS to the gateway on a periodic basis and will release items to customers as directed by the gateway. Finally, a single relational data base (the gateway) will furnish the management and control mechanism to make OSC work.

The gateway will contain the necessary information for making decisions while processing requests. This information will include copies of the asset balance files for each direct support supply activity in the Army. A transaction history file will contain an image of each request received, the date and time the request was placed, and a code indicating the action taken by the gateway. Financial information will also be maintained for each authorized user. These data sources will be used to perform edits, process validations, obtain financial management information, and provide supply status information to the user.

The gateway software is designed to return status



The objective supply capability will make it possible to place an order in less than a minute.

information to the requestor within minutes. This status will identify what action to take or what action has been taken. The gateway will also process the request to the appropriate level of supply, including the wholesale level when necessary, in 1 day instead of up to 14 days.

The OSC concept was demonstrated in a proof-of-principle test at Fort Hood, Texas, in the fall of 1988. Based on the success of that demonstration and the enthusiasm of the units involved, an expanded proof-of-principle demonstration was continued through March 1991.

As a result of a milestone review conducted by the Major Automated Information System Review Council in February 1991, OSC management was transferred to the program executive officer for STAMIS. A product manager (PM) for OSC was appointed under the project manager for Army retail logistics systems. PM OSC will coordinate changes to existing systems, develop the OSC data base, and field OSC.

The Army is testing the tactical communication capability of OSC in the Kuwaiti theater of operations. This will include the use of commercial radio, mobile subscriber equipment, and satellite communication links. While acting as a test bed, OSC will also provide cost savings and better asset visibility as the troops in that theater withdraw.

Tactical communication fielding plans are being formulated to support the Army's contingency corps, the XVIII Airborne Corps, as soon as possible. The goal is to provide compatible communication equipment.

What will OSC mean to the Army? OSC will contribute directly to greater weapon system availability and more efficient and effective logistics support in several areas—

• Asset visibility. Army supply managers will gain access to all class II (clothing and individual equipment), packaged class III (petroleum, oils, and lubricants), and class IX (repair parts and components), as well as limited class IV (construction materials), and assets stocked at retail level within the Army. Redistribution will be automated to more effectively use available assets. OSC will identify authorized stockage list assets on hand above prescribed levels and allow for the redistribution of those assets to fill customer requirements. It will also provide local item managers with the ability to make sound management decisions about stockage (for example, how many items should be stocked and where).

Supply managers will have the capability to inquire into the various OSC data bases (such as DS4 and SAILS asset balance files) to extract specific management reports outlining the effectiveness of OSC. Resource managers will be able to monitor and control the expenditure of operation and maintenance and stock funds by inquiring and updating the gateway data base.

• Reduced order and shipping and customer waiting times. The time devoted to processing orders and the subsequent time spent by customers waiting for their deliveries will be reduced by cutting the processing time for requests from up to 14 days to less than 1 day.

• Lower inventory cost. The decrease in order and shipping time will allow the Army to decrease requisitioning objectives, which will translate into lower inventory and inventory maintenance costs.

• Improved readiness. Operational readiness is a function of equipment availability and thus of parts availability. Sixty-two percent of all non-mission-capable time is directly attributable to lack of parts. Greater asset visibility within a geographical area and lateral distribution of critical assets, coupled with an accelerated process for routing requisitions to the appropriate source of supply, will result in increased equipment availability and improved operational readiness.

• Functional performance improvements. Improved materiel availability and more accurate information about requisitions will allow unit maintenance and supply managers to plan more accurately. Better planning will produce better use of the Army's resources and higher availability of systems.

Finally, what is the financial payoff of OSC? Preliminary cost-benefit analysis shows the potential for incremental savings over current operating costs to be nearly $500 million through fiscal year 1997.

The realization of the objective supply capability will increase the effectiveness of the Army's logistics system and improve requisitioning for users at all levels. Perhaps most importantly, OSC will move the Army closer to the goal of transforming the current, separate wholesale and retail systems into a single, integrated network. **ALOG**

Todd Wagenhorst is a mechanical engineer with the Army Belvoir Research, Development, and Engineering Center at Fort Belvoir, Virginia. He is currently on a logistics and acquisition management program developmental assignment with the Army Strategic Logistics Agency. He holds a B.S. degree in agricultural engineering from Virginia Polytechnic Institute and State University. A graduate of the Army engineering intern program, he recently completed the Program Management Course at the Defense Systems Management College.

Appendix AO

Readiness-Based Maintenance, Army Logistician, November-December 1991

Readiness-Based Maintenan

The Army is testing a concept that will maximize weapon s of our maintenance resources for class IX items.

In recent years, the Army has placed a growing emphasis on acquiring high-technology weapon systems. The value of these weapon systems—such as the Patriot air defense missile, AH-64 Apache helicopter, and M1 Abrams tank—was demonstrated recently in Operations Desert Shield and Desert Storm.

However, the complexity of these weapon systems and their associated repair parts makes them very expensive and difficult to maintain. The high cost of some of their class IX spares, coupled with constrained Army budgets for the foreseeable future, will not allow us to stock class IX assets in the logistics pipeline as we have done in the past. Even if the necessary funds were available, our inability to accurately predict equipment failures could preclude us from buying the right things—and in wartime, predicting failures becomes even more difficult.

Army doctrine is changing as the Soviet threat recedes, yet recent experiences have shown that the Army must be prepared to deploy and fight anywhere in the world at a moment's notice. To ensure that its weapon systems are ready, the Army needs to improve its ability to prioritize repair requirements and link its distribution of class IX assets to those priorities.

To answer this challenge, the Army is testing a concept, called readiness-based maintenance, that was developed by the RAND Corporation's Arroyo Center in Santa Monica, California. The key part of the overall readiness-based maintenance concept is a mathematical model called distribution and repair in variable environments (DRIVE). The basic objective of DRIVE is to maximize the probability that all units will meet their weapon system availability goals at the end of the planning period.

When fully developed, DRIVE will provide logisticians at many levels with a decision-support tool that can accomplish two fundamental tasks. First, DRIVE will prioritize repair requirements, which will enable logisticians to make the best use of maintenance resources. Second, DRIVE will recommend distribution of class IX assets by unit, which will increase the probability that units will meet the weapon system availability goals.

The DRIVE model requires the input of both operational and logistics data. Operational data include such information as anticipated operating tempo, the intensity and duration of combat, the weapon system availability goal, and force structure.

Logistics data include worldwide class IX asset data (for both serviceable and unserviceable assets), failure factors, the distribution of maintenance tasks, repair times, order and shipping times, and many other variables. After the data are fed into the model, DRIVE produces a short-term list of what to fix and where to send class IX assets.

The RAND Arroyo Center has conducted three proof-of-concept simulations, one each at the depot, theater, and division levels. These tests demonstrated that a decision-support tool such as readiness-based maintenance could improve Army logistics support of high-technology systems in a variety of areas. The potential is great for significant payoffs in increased weapon systems availability. Readiness-based maintenance can also provide more flexible and responsive support at a lower cost.

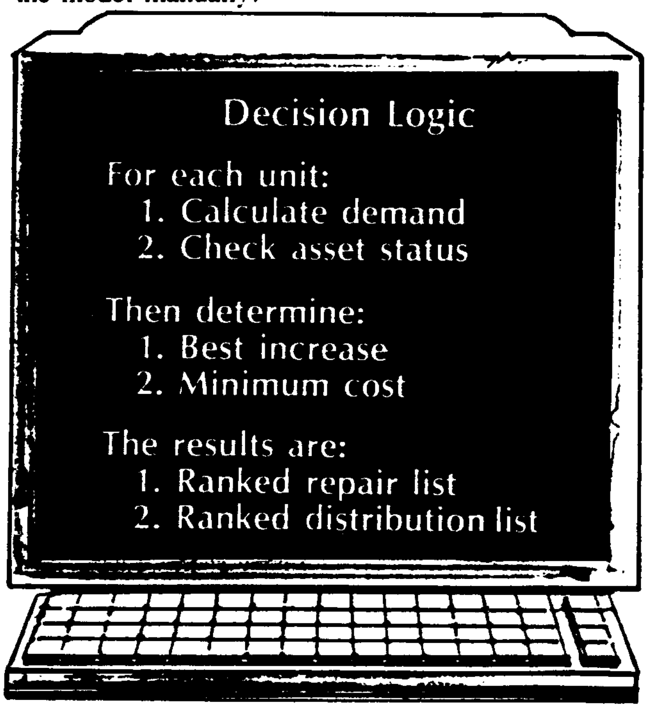
For the past several years, the Air Force has conducted tests of a DRIVE model to prioritize repair requirements at the Ogden Air Logistics Center, Utah. Based on the work done by the Air Force, the Army has awarded two contracts, through the Air Force Logistics Command, to The Analytic Science Corporation and Dynamic Research Corporation to conduct proof-of-principle prototype tests. One test will be at the depot and national inventory control point level and the other in a corps or division materiel management center.

The first test—at the depot and national inventory control point level—began 28 May and is scheduled to continue through 27 November. To reduce the scope of this test, it is limited to the fire control system of the multiple launch rocket system (MLRS). The national inventory control point for this system is the Army ce by Cecilia B. Butler

's tem availability while optimizing use

Missile Command at Redstone Arsenal, Alabama, and its repair sources are Red River Army Depot, Texas, and a contractor, LTV. Units supported in the test include MLRS units in the continental United States under U.S. Forces Command and in South Korea.

Data to support the test are coming from existing and evolving standard Army management information systems. Data extracts are being provided from the commodity command standard system, standard depot system, logistics intelligence file, and total asset visibility file. In addition, a standard Army maintenance system change package was provided to the MLRS units. That package allows open work orders to flow to the Army Materiel Readiness Support Activity in support of the test. Operational data are being fed to the model manually.



DRIVE will use operational and logistics data to produce prioritized lists that guide logistics decision-making.

Early test results indicate that the quality of the data being input into the model needs improvement. Because a large number of assets are available in the field for each national stock number in the test, the repair lists recommended by DRIVE have been very short; in some cases, no assets have been recommended for repair. DRIVE is also recommending distribution of serviceable assets to units by Department of Defense activity address code (DODAAC); requisitions are then matched to the recommended distribution lists. In many cases, however, no requisitions for these serviceable assets have been received from the field. This problem has resulted because readiness-based maintenance is proactive, not reactive (being, in essence, a "push" system), and thus represents a change from the traditional "pull" system of requisitioning.

The Army Materiel Systems Analysis Activity (AMSAA) is acting as the independent evaluator for the test. Its evaluation, to be completed in February 1992, will examine the feasibility of using an algorithm like DRIVE to assist in decision-making, evaluate the usefulness of the products produced by DRIVE, and assess potential payoffs. Lessons learned will also be provided at the conclusion of the test. The test of the readiness-based maintenance concept in a corps or division materiel management center is planned for April to September 1992.

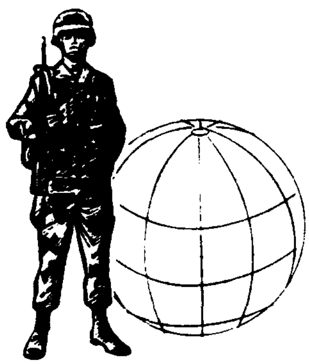
As the Army moves forward with stock funding of depot-level reparables and accommodates to reduced budgets, it is imperative that logisticians have decision-support tools that will help them provide the best support to the soldier in the field. Readiness-based maintenance looks like a promising source of assistance in ensuring weapon system availability. ALOG

Cecilia B. Butler is a logistics management specialist assigned to the Army Strategic Logistics Agency, Fort Belvoir, Virginia, and is the team leader of the readiness-based maintenance initiative. She is a graduate of the Army Materiel Command supply management intern program.

Appendix AP

Usage-Based Requirements Determination, Army Logistician, January-February 1992

Usage-Based Requirements Determination



by Robert D. Berger,
Edwin Gotwals,
and Bobby Chin

This concludes the Strategic Logistics Agency's series of articles on the Strategic Logistics Program.
—Editor

A cornerstone initiative of the Strategic Logistics Agency (SLA), Fort Belvoir, Virginia, is usage-based requirements determination (UBRD). In a time of shrinking defense budgets, this program gets back to the basics of logistics by focusing on enhancements to core functional processes and their related data sources. It will improve the support of logistics functions by applying cost-effective methodologies, infusing state-of-the-art technology, and using feedback data from the field.

UBRD establishes baseline requirements for the functional processes of provisioning, cataloging, and supply management. UBRD will expedite the application of the weapon system sparing-to-availability concept across the Army. The sparing-to-availability concept is a generic term used to encompass the implementation of optimum inventory processes developed to support weapon system performance at the least cost. These processes use models that are characterized as being multiechelon, multi-indentured inventory models that determine the optimal range and depth of spares and repair parts at all locations in order to meet either a weapon system or end item budget constraint or a weapon system or end item operational performance target. These key functional processes generate the majority of the logistics information used in determining requirements. They are the "information engines" that drive all other logistics processes.

UBRD is not a system but a management strategy used by SLA to support and integrate emerging initiatives across the areas of provisioning, cataloging, and supply management. UBRD includes three major program subinitiatives: usage-based provisioning; the logistics data enhancement program; and multiechelon sparing-to-availability. Through these subinitiatives, UBRD supports the implementation of several elements included in the Defense Management Review decisions (DMRD's). UBRD supports DMRD's by documenting functional automation requirements and, in some instances, by providing funding for actual development of software for automation requirements through the proof-of-principle methodology.

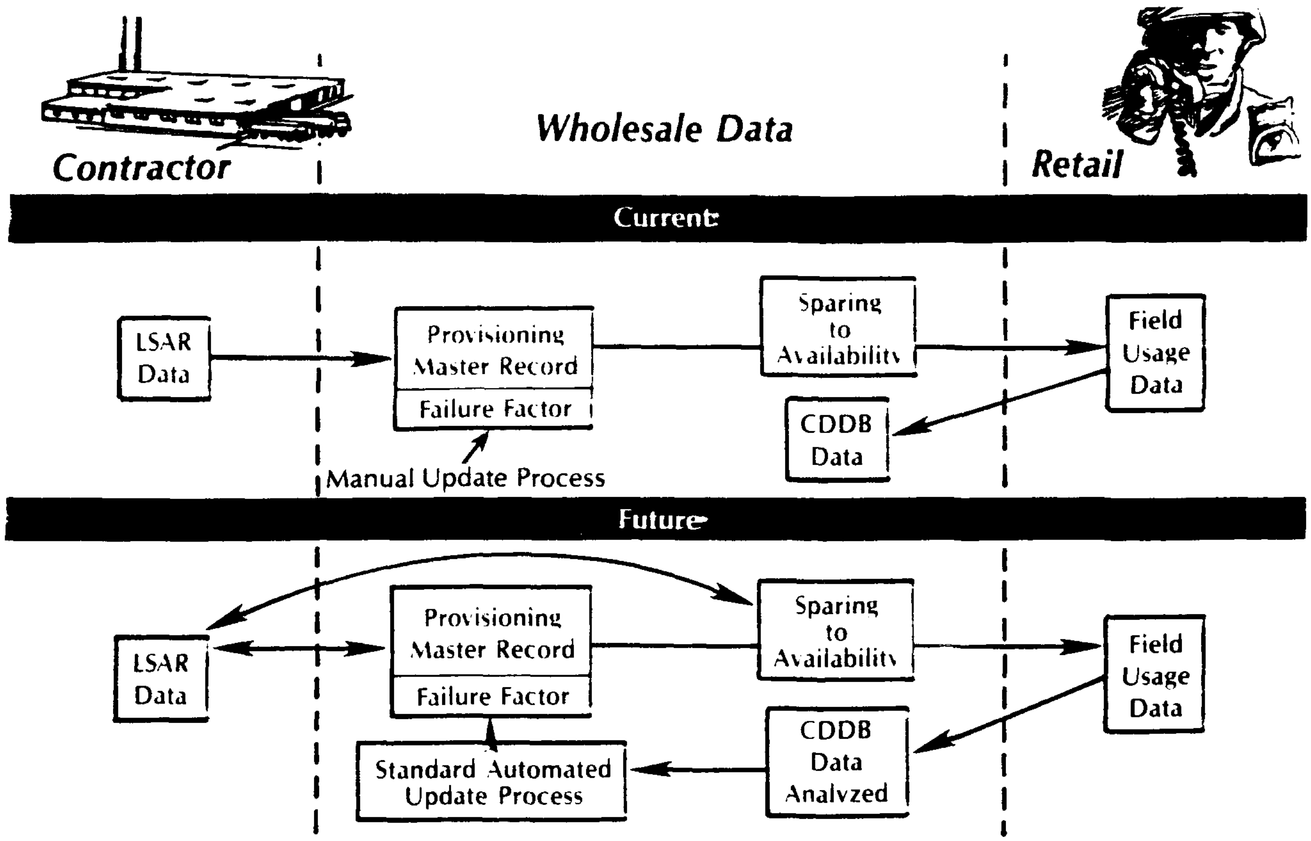
The DMRD process is driven by the need to reduce costs and provide savings. The Army must reduce the cost of doing business without degrading readiness. UBRD contributes to this effort by improving the key processes that generate logistics data and by expediting the implementation of improved business processes such as weapon system sparing-to-availability.

An equation has been developed to demonstrate how inefficiencies in provisioning, cataloging, and supply management lead to higher than necessary inventory costs. The UBRD equation is based on the premise that our current logistics processes operate below optimal levels because inaccurate data or inefficient processes are used in determining requirements for initial fielding or replenishment of spares and repair parts. In some cases, manual calculations are used to determine requirements.

In the UBRD equation, inventory cost is a function of the degree to which accurate data are input and optimal logistics models are used to generate requirements for spares and repair parts. Simply stated, the use of inefficient models or inaccurate data may cause higher than necessary inventory costs. The UBRD equation is illustrated as follows—

$$\begin{matrix}\text{Inventory}\\ \text{Cost}\end{matrix} = f\left(\begin{matrix}\text{Optimization}\\ \text{Model}\end{matrix} + \begin{matrix}\text{Input}\\ \text{Accuracy}\end{matrix}\right)$$

UBRD will reduce inventory costs by supporting the implementation of optimization models and by improving the accuracy of the data needed to run those models. An optimization model uses an algorithm to compute requirements. It provides for the correct mix of an inventory of repair parts and secondary items to sustain maximum readiness at a given cost. A primary objective of UBRD is to ensure that optimization models using the sparing-to-availability process are used throughout the requirements process in both wholesale



Usage-based provisioning will improve the current process by electronically linking provisioning and usage data bases and using feedback data to automatically update failure factors.

and retail systems.

The need for more accurate data to feed optimization models is obvious. Many recent studies on excess repair parts and spares management indicate that erroneous data and the lack of feedback from the field are primary causes of excess inventories. Historically, when the use of inaccurate data led to shortages, the remedy was to procure more parts, which in some cases resulted in additional excess inventories. In the future, constrained budgets will make the option of buying more items to cover shortfalls a luxury. Accurate information will be a commodity as valuable as the dollars needed to purchase the items.

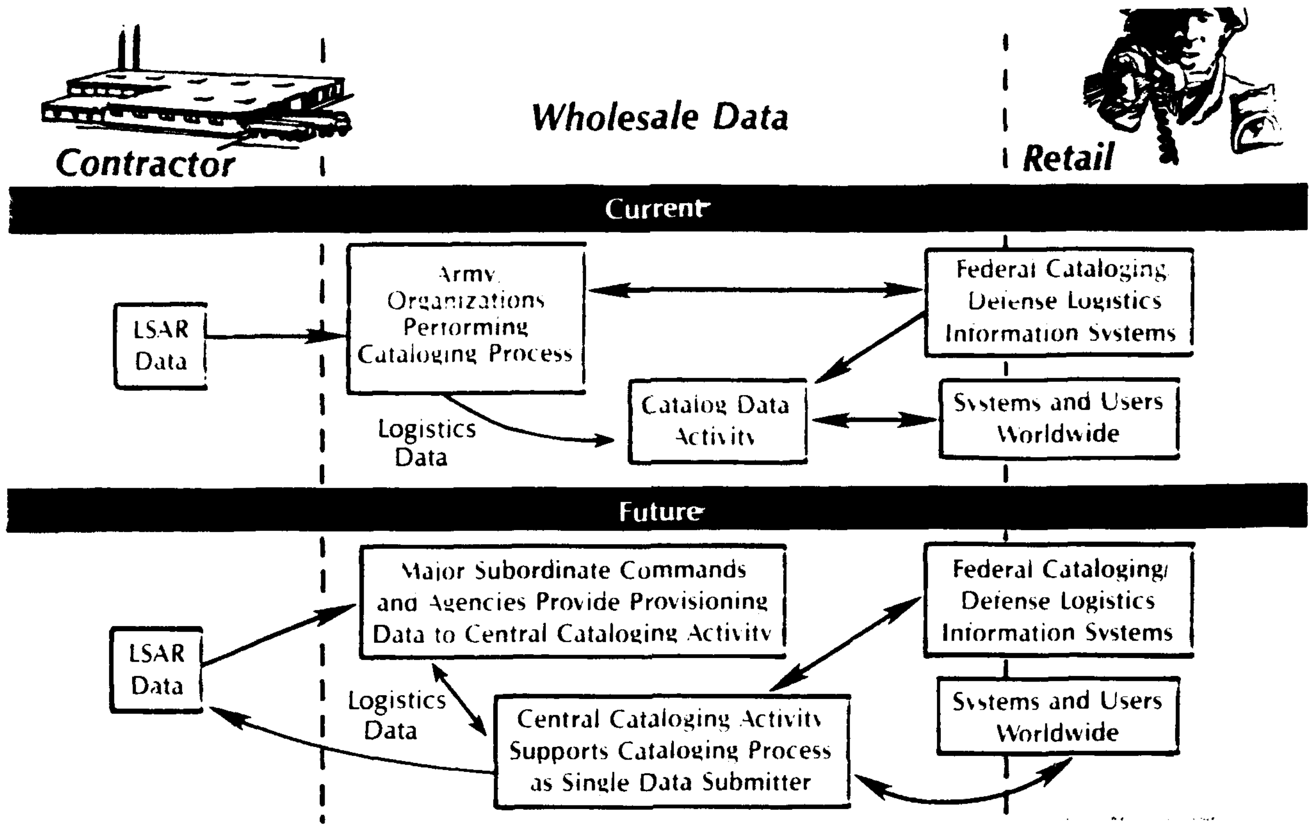
Usage-Based Provisioning

Usage-based provisioning is the subinitiative that focuses on enhancements to the provisioning process. These enhancements include the following–

- Providing full compatibility with the logistics support analysis record (LSAR).
- Accepting and editing provisioning technical documentation.
- Recording and maintaining provisioning decisions.
- Providing an audit trail of changes to key data fields.
- Establishing a configuration baseline for weapon systems management.
- Providing a provisioning screening interface with the Federal Catalog System.
- Updating failure factors using feedback data from the field.

When examined individually, these enhancements constitute the basic building blocks of a new and improved way of conducting the business of provisioning. The benefits of these enhancements will be increased by changes in the provisioning data base, which is being moved out of a batch software-and-application environment to a relational data base environment.

Usage-based provisioning will use field usage data to make adjustments to initial engineering estimates, thereby improving or validating the accuracy of data that are a key source for the provisioning computational model for requirements. Applying an update process to the failure factor (or maintenance replacement rate, as it is now called) will enhance other processes, such as the support list allowance computation (SLAC) and the war reserve requirements process. During the development and operation and support phases of the weapon system life cycle, optimization models, applied with field usage data, will improve weapon system durability, readiness, and sustainability while increas-



Under the logistics data enhancement program, Army cataloging will be performed by a single, centralized cataloging activity rather than by 11 organizations.

ing operational availability and reducing inventory costs.

Two proofs of principle will be demonstrated under the usage-based provisioning subinitiative. One is an automated process that will allow updating of failure factors based on usage. This test will take place during the second quarter of 1992. The second is electronic linkage of provisioning master records with usage data in the central demand data base (CDDB), which took place in the fourth quarter of 1991.

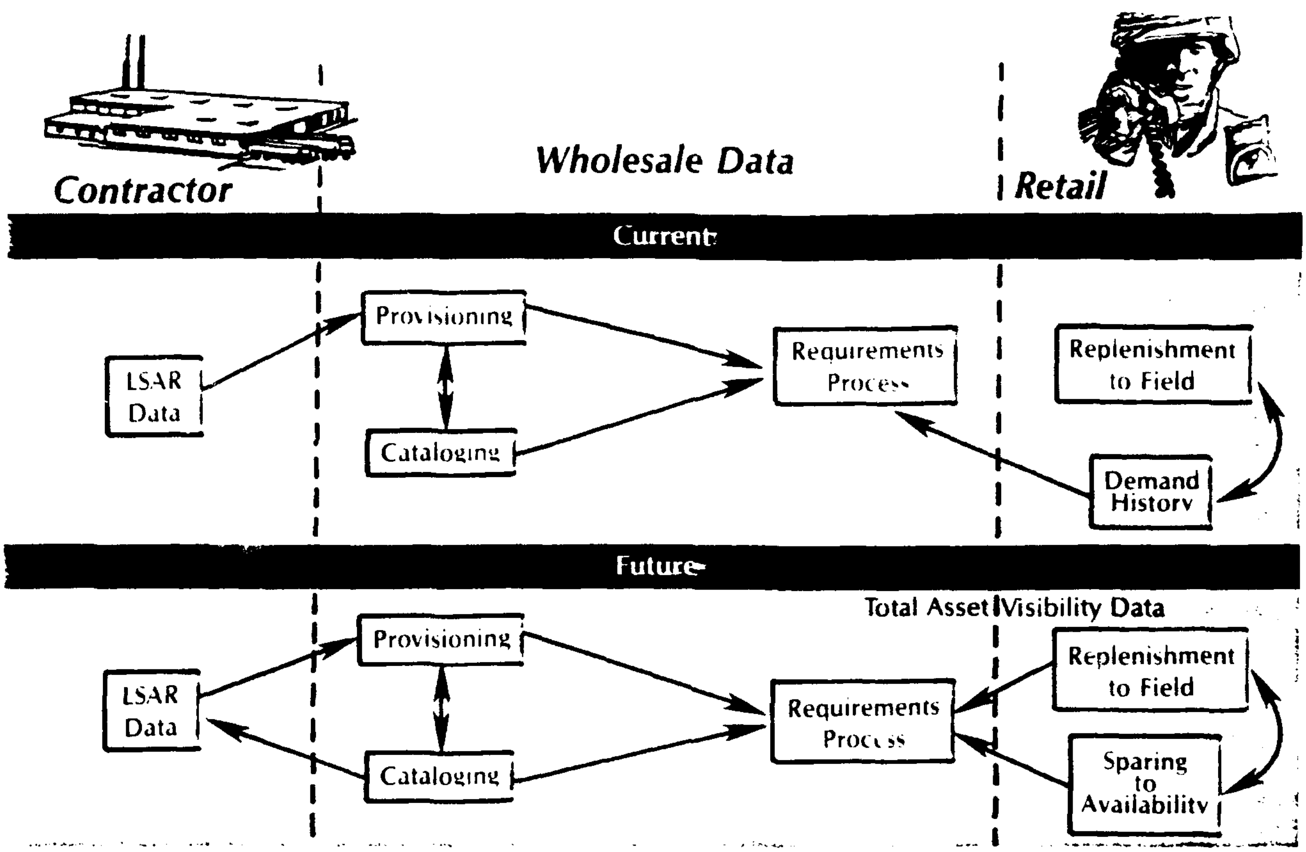
The proof of principle for the failure factor automated process includes the development of a data process analyzer that will be established at the CDDB site at the Logistic Control Activity, the Presidio of San Francisco, California. It also includes the development of an update processor that will be linked to the CDDB data but located at each Army Materiel Command (AMC) major subordinate command.

As part of usage-based provisioning, the major subordinate commands' provisioning master data records will be electronically linked through the use of a communications network. This capability will provide a total-weapon-system view across major subordinate commands while reducing the duplicate data sets that currently exist at those commands. This electronic linkage will provide the capability to interface and exchange data with a contractor site, either to update LSAR data or to provide the contractor access to the sparing-to-availability computer model. Usage-based provisioning will make possible continued development of the weapon system management concept and will meet a goal of the computer-aided acquisition and logistics support (CALS) program by linking what are now separate "islands" of automation across one functional area.

Logistics Data Enhancement Program

The genesis for the logistics data enhancement program (LDEP) is DMRD 926J, which mandates that Army cataloging be centralized. The Army currently conducts 1 or more cataloging functions at 11 different locations. Centralizing Army cataloging will help correct problems with catalog data accuracy by reducing the number of activities authorized to "create" and disseminate catalog data and by making the cataloging process more responsive to timely updates of data. By instituting a "single data submitter" concept, centralization will create a total quality management process for Army cataloging.

Creating and maintaining a catalog record are complex and involved tasks. When the correct procedures and processes of the Federal Catalog System are applied, Army cataloging is a value-added logistics in



Multiechelon sparing-to-availability will improve the current requirements determination process for supply management.

formation management process. However, when shortcuts are taken to enter data records, problems result that cascade down through the entire logistics process and across functional lines. In the current Army cataloging process, LSAR data acquired as a result of the provisioning and acquisition process are fed into the cataloging process at eight different Army sites. The cataloging offices at three other sites provide record maintenance and file compatibility processing.

As the cataloging process converts LSAR data and assigns unique coding to Army catalog and logistics records, the resulting cataloging data are passed to the Defense Logistics Services Center at Battle Creek, Michigan, for approval and entry into the Federal Catalog System (FCS). This process has structural deficiencies because the numerous submitters of data do not consistently apply the uniform rules of the FCS to the business process. Many redundant files and data sources are created, which results in compatibility problems. The establishment of a single centralized cataloging activity at the Catalog Data Activity (CDA) will provide for a centralized, total-quality management review of the Army cataloging process from a single site.

LDEP will support the objective of centralizing cataloging by stressing the urgent need for improved catalog source data. These data provide essential input to the sparing-to-availability models and, more importantly, provide the base information support to all other logistics functions and their automated information systems at all wholesale and retail levels. The LDEP subinitiative will also reduce unnecessary inventory costs by increasing quality control of data. Cataloging basically restricts the entry of items in the Federal Catalog System by initial data screening. This process encourages the incorporation of existing items of supply into the configuration of new weapon systems entering the inventory. It also supports inventory reduction by providing a purge mechanism for obsolete items.

Two other LDEP proofs-of-principle are designed to enhance and modernize the data dissemination function performed by the CDA. One proof-of-principle will use compact disc-read only memory (CD-ROM), and the other will modernize electronic data dissemination through the remote terminal Army master data file inquiry system (RTAMS). These modernization efforts will move the Army away from the use of microfiche as the primary medium for catalog publications.

These initiatives will not only enhance the data dissemination process but will also implement a technology whose advantages are only now beginning to be realized. CD ROM will improve the timeliness, accuracy, and usefulness of cataloging and logistics data; reduce file incompatibility; and increase user productivity. A successful CD-ROM proof-of-principle, in which the Army master data file was disseminated and evaluated in the field, has already been conducted and documented. Based on this test, a subsequent proof-of-principle will be conducted to test the usefulness of a product that will contain all Army-unique data and provide an interactive capability with existing Army standard systems.

Multiechelon Sparing-to-Availability

The final UBRD subinitiative is multiechelon sparing-to-availability (MESTA). This subinitiative focuses on the requirements determination and replenishment processes across the Army.

In 1990, AMC, with Department of the Army concurrence, required "all future provisioning computations to be accomplished using SESAME (a sparing-to-availability model) in the least cost optimization mode." MESTA focuses on the accuracy of the data required by this model and also supports the follow-on use of a sparing-to-availability process for retail replenishment. By implementing sparing-to-availability across the Army, both provisioning and retail replenishment will be operating in a least-cost mode without degrading weapon system performance.

Critical to the use of the sparing-to-availability process is the accuracy of the estimates of the process parameters. Realistic estimates of key supply management data elements need to be used. These data must be auditable, and a historical data bank needs to be established so trend analyses can be performed. Usage and asset data must be monitored to maintain the effectiveness of the MESTA applications.

SLA is currently working with the Army Materiel Systems Analysis Activity to demonstrate the efficiency of the MESTA optimization process that will generate replenishment requirements at the retail level of supply. This initiative, together with changes projected for the stock models at the wholesale level, will allow the Army to establish a multiechelon requirements determination capability and support the Army's move toward a seamless logistics system.

Three proofs-of-principle are planned under the MESTA subinitiative. One, called M-204 transparency, is designed to enhance the supply management process by establishing a relational data base management system for use in the wholesale requirements determination process. The other proofs-of-principle will provide a capability for using asset data in the requirements determination process to offset procurements and a redistribution capability for existing assets. The M-204 transparency proof-of-principle is scheduled for the first quarter of 1992; the others are still in the concept development and coordination phase.

While the savings aspects that relate to the overall UBRD project have not been discussed, they are substantial. However, the realization of the bulk of these savings depends on the rapid development and implementation of the UBRD proofs-of-principle. The target milestones for the initiatives in supply management will be as aggressively pursued as those in the other functional areas in order to realize the projected savings. If these savings are not achieved, future budget cuts will be inevitable in nonlogistics areas, such as operations and training.

Once the actions discussed here are fully underway, UBRD will get "back to basics" again by subjecting these key functions to a process called object-oriented programming (OOP). This process is intended to restructure how we develop information systems in a way that will combine actual data or information with the corresponding application code to produce a reusable generic module. That module can then be linked to many other generic modules to form a complete functional process and, eventually, a complete system.

The UBRD initiative represents an effort to reassess key functional processes from top to bottom. It focuses on near-term fixes to existing systems and processes that have quick payoffs and known returns. It allows the Army to move its automated system development toward the DOD objective corporate information management (CIM) system. While modernizing and integrating Army logistics processes, UBRD also fosters the implementation of key DMRD's. The result is better management at reduced cost and improved equipment readiness. ALOG

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Appendix AQ

CIMMC After Action Report for Operations Desert Shield/Storm, Executive Summary, Undated

TAB A

EXECUTIVE SUMMARY

1. MISSION/FUNCTIONS: The mission of the United States Army CECOM Intelligence Materiel Management Center (IMMC) is to provide integrated wholesale and specialized logistics support to the Army, Department of Defense (DOD) customers, and foreign allies for assigned Signals Intelligence/Electronic Warfare (SIGINT/EW) weapons and equipment; to manage Level II and Level III weapons systems and equipment having completed their initial development and fielding; and to act as a strong central advocate for improving operational availability and sustainability for assigned weapons systems and equipment.

The essential functions of IMMC are as follows:

A. Serves as the DOD National Inventory Control Point for assigned SIGINT/EW weapons systems, equipment, and repair parts.

B. Serves as the DOD National Maintenance Point for assigned SIGINT/EW weapons systems, equipment, and repair parts.

C. Serves as the DOD Principal Inventory Control Activity and Secondary Inventory Control Activity for assigned weapons systems, equipment, and repair parts.

D. Serves as the Army materiel manager for cryptologic equipment and components (Federal Supply Class 5811) and related unique items (regardless of supply class).

E. Supports materiel development through application of Integrated Logistics Support Policies, methods, and practices. Ensures that reliability and maintainability are "built-in" to new systems.

F. Fields and sustains assigned weapons systems and equipment to Army users worldwide. Monitors readiness and availability of as signed weapons systems and equipment, and develops and implements strategies for improvement.

G. Provides customer assistance services to DoD customers worldwide.

H. Provides the Army capability for depot maintenance training and instruction for SIGINT/EW equipment for the Military Occupational Specialty 33 series military personnel.

I. Provides the accountable records officer for wholesale SIGINT/EW assets.

J. Performs depot receiving, storage, shipment, and inventory accounting for selected SIGINT/EW equipment and repair parts. Provides the custodial records officer for materiel stored with the IMMC.

K. Performs depot maintenance and repair for selected SIGINT/EW weapons systems, equipment, and assemblies.

L. Provides program support to Program Executive Officers and Project/Product managers for the development, fielding, and sustainment of SIGINT/EW weapons systems and equipment.

M. Performs career program management for civilians employed by the IMMC.

N. Coordinates implementation of the Total Quality Management (TQM) program for the IMMC.

2. GENERAL DESCRIPTION: The IMMC is located on Vint Hill Farms Station, Virginia, approximately 40 miles southwest of Washington D.C. As of 14 Jun 1991, there were a total of 531 IMMC military and civilian personnel employed worldwide.

3. SIGNIFICANT ISSUES - DESERT SHIELD/STORM:

A. COMMAND AND CONTROL: Command, control, and direction of the IMMC effort was exercised through the Emergency Operations Center (EOC). The IMMC EOC was telephonically alerted for activation by a contingency plans officer from the Communications - Electronics Command on 27 July 1990. The EOC was immediately activated, and began 24 hour per day operations by 8 Aug 1990. Under the direct control of the Director, IMMC, the EOC was the focal point for all actions relating to Operations Desert Shield and Desert Storm. A total of 535 actions were opened, tracked, and closed by the EOC during this operation.

1) Initially however, there was confusion surrounding the purpose and mission of the EOC. IMMC was not well prepared to handle the additional impact of wartime support for IEW systems and equipment. Additionally, the facilities were physically inadequate, personnel lacked background and training in emergency operations, performance standards and rating schemes for civilian personnel for long term details did not exist, nor did security procedures for an EOC. All this stemmed from the lack of a standard operating procedure (see Tab IV). In summary, although IMMC had emergency plans for wartime scenarios, the reality showed many weaknesses. In the future, it is highly recommended that the EOC be activated to support Joint Combat Service Readiness Exercises.

2) Communications supporting Command and Control between the EOC and the SRAs consisted primarily of secure and non-secure voice and facsimile, record (message) traffic, and electronic mail. With the installation of the Goldwing HF Communications systems at the SRAs, all three SRAs had the capability to communicate (non-secure voice and secure data) with each other. Thus, the Goldwing was instrumental in reducing previously long delays in information flow.

B. SPECIAL REPAIR ACTIVITIES: When the Director of the Intelligence Materiel Management Center (IMMC) learned that Military Intelligence units were deploying to Southwest Asia in support of Operation Desert Shield, he visited each unit to determine what equipment they were taking and what support they needed. It was determined that an interim contractor repair facility was necessary to support those units. The repair contract was modified and IMMC representatives deployed to SWA with the contractor site chief on 25 Aug 90 to establish the first "Rainbow" IEW Special Repair Activity. The Rainbow SRA was operational the first week of September and immediate support was available for the MI units. As the number of MI units grew, the requirement for maintenance and supply grew; thus, IMMC deployed personnel for two more SRAs. Fundamentally, the Rainbow SRAs provided forward, depot-level maintenance and a direct link with the IMMC EOC to expedite requisitions and identify critical parts. SRA I in Dhahran provided initial maintenance when the units arrived in SWA and later served as a logistical focal point for B46 items. As the Army deployed forward of the Dhahran area, SRA II at KKMC became the center of gravity for tactical IEW maintenance, while SRA III in Riyadh focused on the EAC MI units. Co-locating IEW General Support Maintenance Detachments with the contractors at SRAs I and II expedited the turnaround times on repair actions. For example, the 159th IEW GS Det had an average turnaround time of 72 hrs for over 570 jobs; and from 16 Jan to 20 Mar 1991, the Mantech contractors at SRA II completed over 200 work orders (not counting forward tech assist missions) - the equivalent of nine months of work in Germany. An operational readiness rate for all IEW equipment of at least 90% throughout both Operations Desert Shield and Desert Storm attests to the dedication of both the civilians and military who work for IMMC and CECOM. The CECOM IEW LARs, for example, another major factor which contributed to the high IEW operational readiness rates, lent both technical and logistical expertise to the units. Additionally, having the CECOM IEW LARs based at SRA II was instrumental in identifying which units needed assistance, thereby maximizing the effectiveness of the tech assist missions to the forward deployed units.

C. PERSONNEL: The personnel strength of IMMC on key dates of Operations Desert Shield and Desert Storm were as follows:

	2 AUG 90	15 JAN 91	12 APR 91
OFFICERS	10	11	13
ENLISTED	152	153	154
CIVILIAN*	329	316	339
TOTAL	491	480	506

* Figures include temporary and summer hire personnel.

During Operations Desert Shield and Desert Storm, a total of six Individual Mobilization Augmentees (IMAs) were activated. The IMAs not only filled shortages caused by personnel deployed to Southwest Asia or working in the Emergency Operations Center, but also, in some cases, deployed to Southwest Asia. There were six temporary employees, primarily clerical also hired to support Operations Desert Shield and Desert Storm.

On 26 Aug 1990, MAJ Alexander Froede, Chief of Strategic Engineering, departed for Saudi Arabia to serve as the IMMC representative for CECOM-SWA and to establish the IEW Rainbow Special Repair Activities. Shown below is the number of IMMC personnel deployed to SWA:

Military	9
DA Civilian	5
Contractor	35
TOTAL	49

For a complete listing of personnel, see TABs VI B and X.

D. SUPPLY:

1) REQUISITIONS/PUSH PACKAGES: Initially, when the MI Battalions first deployed to SWA, the materiel flow process drastically declined. DODAACs for the deployed units changed and DODAAC information was not disseminated to the item managers. These problems were quickly solved, however, and materiel flow to SWA accelerated. During Operation Desert Shield and Desert Storm, IMMC received 3,191 requisitions. Of that total, 2,285 requisitions were filled, 226 were backordered, and 680 were canceled.

Additionally, to provide optimum support for the deployed units, numerous push packages were sent to SWA. These push packages consisted of spare IEW LRUs which were sent, for the most part, to the SRAs to boost their stock. In a sense, it was a depot stock forward.

2) SUPPLY IN SWA: The CECOM community as a whole in SWA spent an inordinate amount of time assisting the units in expediting NMCS requisitions and developing push packages to ensure continuation of support with respect to maintenance requirements. By assisting the many units Saudi Arabia, CECOM-SWA became the resident experts on the in country supply system and spent many hours at the numerous APODs and supply support activities identifying for the support personnel the correct customer.

E. MAINTENANCE/CONTRACTOR SUPPORT:

ATE Detachments - Numerous ATE Detachments deployed to SWA to conduct maintenance on CECOM managed equipment. They were, for the most part, successful in supporting the equipment with which they were familiar (such as Firefinder). Unfortunately, these units were of little help in IEW maintenance, primarily due to the following reasons: the fieldings of the IEW TPSs were rushed, some of the bugs in the IEW TPSs caused confusion in the inexperienced operators, and lack of electronic background in the MSM-105 operators.

GS Maintenance Detachments - The GS Maint Dets performed admirably. Caught in the tug-of-war between the divisions, the corps, and the theater army of who actually owns them; these units kept in mind that their primary mission was to support the MI units. Often lacking the skills and equipment required to complete their mission, they utilized ingenuity to find a solution. The 159th, for example, received over 1150 work requests and completed over 90% with an average turnaround time of less than 72 hours.

Contractor Support - Development of logistics data often lags equipment deliveries. Provisioning, training and maintenance procedures, particularly for NDI, are routinely delivered after equipment is fielded. Some systems that are characterized by low density and high technology are planned for long term contractor support. Therefore, there was a significant number of contractor personnel in SWA supporting IEW systems.

Contractor mobility vs AIR-LAND Battle Doctrine: The issue of contractor support mobility proved very quickly that our concepts of contractor field support need some revisiting. Our rapidly moving corps, both when they moved on line and later when the ground phase started, reduced the effectiveness of our fixed site support. Although we added sites, the user did not always have time to travel the distances to use the support base. Limited transportation assets and relatively austere contractor support bases did not allow for support where required.

Lack of Wartime Policy: Language used in Contractor Logistics Support documents did not meet the needs of this command in a wartime scenario. Standard "WAR Clauses" were considered unenforceable by the command's legal group. The FAR/DFAR provided little relief from procurement restrictions imposed in peacetime and valuable leadtime was lost in preparing for the conflict.

Army Infrastructure for Contractors: If contractor support will continue to be a reality on the battlefield, the Army infrastructure must be modified to account for their presence. Currently, units are not designed to accommodate such arrangements, and some Army infrastructures, possibly at the AMC commodity command level, need to be developed to provide the needed command, control, and life support system required for a contractor workforce.

F. TRANSPORTATION: In mid August, when IMMC deployed personnel to SWA to establish the Rainbow SRA, information required to track shipments of IEW systems and equipment to the SRA was vague. There were no procedures in place to provide the SRA shipping information on B-46 equipment (i.e. Transportation Control Number, flight number, mission number, aircraft tail number, etc.). This was an ongoing task requiring extensive work for the EOC and Maintenance & Supply Directorate personnel. Mantech resolved the issue, however, when they agreed to provide a weekly SWA Shipping Status Report. Additionally, there were no clear guidelines concerning the use of Desert Express for IEW equipment in the initial stages of Operation Desert Shield. Once the requirements for Desert Express were identified, it became a viable means to ship 9AU/9BU priority 02 999 requirements to SWA. In all, over 123 shipments were sent to SWA, and 56 were returned to IMMC.

G. READINESS DATA: IMMC personnel and the IEW LARs in SWA collected the operational readiness data, primarily for the "BIG 6" systems, from the MI battalions and reported it to the EOC. The EOC, in turn, compiled and disseminated the data for analysis and action. For the most part, the operational readiness of the BIG 6 systems in SWA either met the DA Readiness Goal of 90 % or surpassed the historical mission capable rates for these systems. Listed below are the overall FMC rates of the "Big Six" systems for the period, 1 Oct 90 thru 28 Feb 91:

SYSTEM	FMC RATE
AN/TLQ-17AV3	97%
AN/TRQ-32	93%
AN/TSQ-138	92%
AN/MSQ-103B/C	90%
AN/ALQ-151	89%
AN/MLQ-34	79%

The majority of the failures (approximately 70%) impacting the readiness of the AN/MLQ-34 resulted from the M1015A1 carrier and on-board generator. Based on information provided by personnel in SWA the AN/MLQ-34 was not heavily employed in support of operations. Additionally, the chart below depicts the causes for the deadlined systems from 1 Oct 1990 to 28 Mar 1991:

System	Times D/L'ed	Trans	Elec	Pwr	Envr	Comm	Shlt
AN/ALQ-151	19	10 53%	5 26%	0	3 16%	1 5%	0
AN/MLQ-34	28	9 32%	4 14%	12 43%	3 11%	0	0
AN/MSQ-103	16	3 19%	8 50%	2 13%	3 19%	0	0
AN/TLQ-17	3	0	1 33%	1 33%	1 33%	0	0
AN/TRQ-32	25	15 60%	6 24%	4 16%	0	0	0
AN/TSQ-138	12	7 58%	2 17%	1 8%	2 17%	0	0

The high readiness rates can be attributed to dedicated unit personnel, IEW Special Repair Activities, on-site CECOM LARS/CIMMC personnel and intensive management and support from USACIMMC, Vint Hill Farms Station.

H. SYSTEMS/EQUIPMENT:

SANDCRAB

SANDCRAB was very effective, especially jamming during the air-war phase. The system does appear to be heat sensitive and should be shut down when not in operation. Weather was relatively cool so extreme heat may pose a problem. The antenna (80 ft. mast) requires Engineer support to erect and should be replaced. Mobility is also a consideration; with the current antenna the system would be extremely vulnerable in a different war scenario. Our logistics system received an unexpectedly high demand for high frequency components and equipment. SANDCRAB is an excellent example of unexpected/unresourced high frequency requirements.

CEFIRM LEADER

No data to analyze CEFIRM LEADER mission performance is available. Logistically this system presented nearly insurmountable support challenges due to its age, one-of-a-kind status and lack of configuration control/documentation of the many changes made by FORSCOM. The system was ultimately maintained by a dedicated support contractor who had no previous system cognizance.

CUCV AND HMMWV CARRIERS

These two carriers provide transportation for two major IEW Systems: the AN/TLQ-17A(V)3, Countermeasures Set (CUCV) and the AN/TRQ-32(V)3, Radio Receiving Set (HMMWV). The AN/TLQ-17A operated above 95 percent readiness with "zero" impact due to carrier problems. It was effective and performed it's primary mission. The AN/TRQ-32 operated at above 90 percent readiness, but the carrier and power generation subsystem accounted for 68 percent of the system's down time. This system is too heavy for the CUCV, which affects mobility and reliability. The planned switch to HMMWV carriers for the AN/TRQ-32 should be significant improvement.

M1015 CARRIER

The M1015 is the primary carrier for the AN/MLQ-34 (TACJAM) and AN/TSQ-138 (TRAILBLAZER) IEW Systems. TACJAM, the Army's primary countermeasures system, experienced 21 percent down time with 78 percent of that time due to carrier problems. The M1015's poor performance includes: transmission/transfer case problems, failed engines, on-board 60kw generators, and power regulator units. During the final rapid mobility phase of the ground war units/commanders left TRAILBLAZER and TACJAM Systems behind because they were too heavy, too slow, and not reliable enough for the fast moving war scenario which evolved. This lack of use due to M1015 problems limits the ability to judge true performance of these systems.

NON-DEVELOPMENTAL ITEMS (NDI)

Although non-developmental items (NDI) are a much needed mechanism to maintain the highest technology capability for our Armed Forces, the enormous number of intelligence systems, deployed by the various corps (XVIII, VII, III), created insurmountable operation problems. The across the board failure to inculcate logistics for these systems to a level useful to tactical units was a major detractor. Logistics processes have been independently developed by the theater/MACOM commanders and are as diverse as the number of systems. The establishment of the Rainbow SRA was a significant positive step forward, but still did not ensure the soldier/commander could deal with a single entity when looking for support/functional assistance. NDI is a logistics burden that we must address in a systematic and calculated process. Saving thousand of dollars on procurement and years on development did little to nothing for many NDI systems once they failed.

4. SUMMARY

The Intelligence Materiel Management Center established an early presence in Southwest Asia to provide the best support possible to the customer units in theater. The initial mission was to establish a presence and provide assistance and guidance with respect to intelligence and electronic warfare (IEW) equipment. The link between the EOC at VHFS and the SRAs in SWA provided a direct interface from the units to the National Inventory Control Points and with the technical experts within the CECOM. This allowed for quick responses to unit inquiries and expert answers to operational deficiencies.

At the onset of Operation Desert Storm IMMC personnel were in place and fully supporting the US intelligence community in SWA. The primary operations moved to the King Khalid Military City viscidity (SRA II), a more centralized location to support the operation, as the majority of US Forces had moved to a location on the Saudi Arabia and Iraq border.

IMMC provided support in many areas to include supply, maintenance, technical assistance, evacuation of unserviceable, readiness data, fieldings, and engineering. We coordinated for innumerable repair actions and immediate requirements as defined by the MI battalions, brigades, ARCENT, CENTCOM, and whoever required assistance.

Hopefully, what is apparent in this is that IMMC provided an invaluable service to the deployed forces and was critical to the success of intelligence and electronic warfare missions throughout the theater of operations. Our equipment could be found at both the highest and lowest levels within the command and without which the overall mission would not have succeeded. An average operational readiness rate for all IEW equipment of 90% throughout both Operations Desert Shield/Storm attests to the dedication of both the civilians and military who work for IMMC.

5. POINTS OF CONTACT: The overall IMMC POC for this after action report is 1LT Stephen Pellissier, OIC, Emergency Operation Center, DSN: 229-5077. Other key Points of Contact for this Center are:

READINESS: Mike Haas, DSN: 229-7715
TACTICAL: Rex Monroe, DSN: 229-5082
CHIEF, OPERATIONS DIVISION: Max L. Watts, DSN: 229-6368
OPERATIONS: John Peacaut, DSN: 229-6370

Appendix AR

CIMMC MFR, 14 August 1992, Subject: BG Stewart IEW Sustainment Plan Discussion with Major Froede, USACIMMC Readiness Directorate, Deputy CECOM Logistics Manager ODS

SELIM-IEW (700)

MEMORANDUM FOR RECORD

SUBJECT: BG Stewart IEW Sustainment Plan Discussion with Major Froede, USACIMMC Readiness Directorate, Deputy CECOM Logistics Manager ODS.

1. This MFR documents a discussion with Major Froede of the IEW Sustainment Support Plan approved by BG Stewart in February 1991 for implementation during ODS. Discussion centered on the plan and the implementation of the plan, but covered additional information concerning the Rainbow SRAs and the GS IEW Maintenance detachments. Major Froede was the initial representative of USACIMMC in SWA with the expressed mission of determining the location and establishing an IEW SRA to support units deploying to SWA. After the SRA was in place he became the SRA 1 government site chief. He initiated planning for SRA 2 and SRA 3 and was selected to be the CECOM executive officer in SWA. After becoming the CECOM executive officer he remained the senior USACIMMC representative in SWA with responsibility for the three IEW SRAs.

2. Discussion centered on the following major areas:

a. SRA situation as of the end of January 1991:

1) SRA 1: SRA 1 personnel were performing maintenance using the hot mock-ups and TMDE available for standard systems. Very little NDI repair was being accomplished by the SRA. The SRA was intensively managing the flow of supplies and parts in and out of the theater. In addition the SRA was providing logistics support to all the SRAs and occasional forward maintenance support teams to use for site visits. One of the key services provided by SRA 1 was the initial equipment checkout and repair performed as individual units arrived. The SRA 1 personnel would test and repair the units equipment as it arrived at the port prior to deployment in country. The SRA supported all standard systems with limited support for a few NDI systems.

2) SRA 2: SRA 2 was deployed to KKMC to provide forward maintenance support and DX support for MI units. They also provided maintenance support teams on a regular basis to MI units. SRA 2 provided forward analysis and repair of LRUs and evacuated all LRUs and CCAs beyond their capability, due either to skills, TMDE, or hot mock-up availability, to SRA 1. Plans were being made in early February to move several of the hot mock-ups forward to SRA 2 to provide additional repair forward capabilities. The SRA primarily supported standard systems with limited NDI support.

3) SRA 3: SRA 3 was deployed in support of EAC assets and was established but performing limited amounts of maintenance. SRA personnel experienced some turmoil as the site chief departed soon after the first SCUD attack on the city. The SRA personnel were limited in their capabilities by a lack of the proper security clearances, TMDE, manuals, and experience with the equipment. They were performing primarily an evacuation function as they supported one standard system and several NDI and non-standard systems at the EAC level.

4) The SRAs had been set up so that SRA 1 and SRA 2 could provide regional support to the eastern and western areas, and SRA 3 could provide support to EAC equipment. As things developed SRA 2 became the central support activity with very few units traveling to SRA 1 for support. SRA 1 then became the support back-up for SRA 2 along with the primary logistics and supply activity for the SRAs. Each USACIMMC site chief was designated as ACOR for their site, with Major Froede having the authorization to commit the government to the highest expenditure of funds by the contractor.

b. The GS IEW maintenance situation as of the end of January 1991:

1) Three GS IEW maintenance detachments were deployed, the 158th IEW maintenance detachment from FORSCOM, the 159th IEW maintenance detachment from FORSCOM, and the 263rd IEW maintenance detachment from USAREUR.

2) The capabilities of the 158th IEW maintenance detachment included repair of FORSCOM NDI systems and DS backup for the units on standard systems. The 158th was also the only unit with expertise in the repair of the Dragonfix NDI system. When the 158th IEW maintenance detachment deployed to ODS they incorporated the IEW stocked items from their home SSA into their uploaded equipment and therefore had spares for support of the units. These spares included standard systems and NDI systems.

3) The capabilities of the 159th IEW maintenance detachment included repair of FORSCOM NDI systems (less Dragonfix) and some GS level repair of standard systems, along with DS backup for units. The 159th equipment included a hot mock-up for the AN/MSQ-103 and all of their organic vehicles, generators, maintenance vans and TMDE. The 159th IEW maintenance detachment owned the SSA stocks of IEW spares while at home station and deployed to ODS with these.

4) The 263rd IEW maintenance detachment had almost no repair capability for standard systems and no experience repairing FORSCOM NDI systems. The 263rd arrived in SWA with very little of their TMDE, organic vehicles, generator or maintenance vans. The detachment performed in Germany as a pass through unit to the USACIMMC SRA at Pirmasens with little or no maintenance capability and when they arrived for ODS they lacked much of the training needed to repair systems. The unit deployed with a support cell from their SSA that collocated with them and provided IEW spares for MI units. The combination of SSA spares and the 263rd IEW maintenance detachment provided the same type and quality of support for ODS as they had been providing in Germany, primarily pass through support to the SRA.

c. Major support shortfalls addressed in the IEW Sustainment Plan:

1) The IEW Sustainment Plan identified the need for transportation support from the logistics community in support of IEW maintenance, identifying the need for air support specifically. The sustainment activities continued to experience transportation shortfalls, finding air support difficult to arrange and not time responsive to the needs of the sustainment community. The immediate solution to this shortfall was to assign SRA contractor personnel the responsibility for transportation between SRAs.

2) The IEW Sustainment Plan identified a need to realign the Army support structure of the Corps to provide the best overall support to the theater. This required the Corps to give up control of their assets, the 158th, 159th, and 263rd IEW maintenance detachments, so the entire theater could be supported in a better manner. The sustainment plan generated an operation order from the Theater J3 directing the Corps to release their IEW maintenance detachments. The Corps' refused to release their personnel and moved their units forward when the Corps GS units moved forward. The politics of the situation with the Corps G-4s was such that they maintained control over these assets throughout ODS. An arrangement was eventually accomplished resulting in approximately a 75% success rate in locating the IEW maintenance detachments where they would provided the best support for the entire theater. The plan called for regional support of all units but the Corps G-4s wanted to maintain their Corps oriented support. The MI units, SRAs and the GS IEW detachments actually went to a regional concept despite the obstacles imposed by the Corps'.

3) The IEW Sustainment Plan identified a need to consolidate and streamline under one support structure the support for standard systems, FORSCOM NDI systems, non-FORSCOM NDI systems, and EAC systems. The only equipment sustainment that was planned to be outside of this support structure was the Tencap systems. This would have allowed for an economy of effort in the logistics and supply support, along with providing the units with a single point of contact for support. This structure was never implemented as the individual support contractors and Program Managers continued to maintain their own stovepipe support systems.

4) The IEW Sustainment Plan identified a need for contractors to go forward of the Corps rear boundary. This was accomplished and allowed support to forward units.

5) The IEW Sustainment Plan identified a need for theater support in the areas of communications equipment, tactical transportation and personnel support for the housekeeping of in-theater contractors. Because the SRAs were assigned to CECOM and CECOM was an AMC asset reporting through the senior AMC representative back to AMC in CONUS there was no in-theater attachment to a unit available. This resulted in the SRAs fending for themselves without a unit directly sponsoring and supporting them. The plan recommended the attachment of the AMC activities to the theater support command who would then have a direct hand in the employment of the SRA and therefore would provide for the personnel.

6) The IEW Sustainment Plan identified a need to consolidate and move the SRA support forward from SRA 1 to SRA 2. This meant movement of all the hot mock-ups and some personnel from SRA 1 to SRA 2. The SRA 1 site chief was reluctant to do this without company approval from CONUS, even after being told to by the in-country ACOR. Eventually some equipment was moved forward and SRA 1 personnel were temporarily sent forward as contact teams.

d. Shortfalls of the IEW Sustainment Plan and the support structure in SWA:

1) Air transportation was either unavailable to the SRA and GS detachments

or not responsive to the needs of these activities. The partial solution was use of contractor personnel in support of the transportation needs of the SRA and GS detachments.

2) Corps desire to maintain control of their personnel made it difficult to align IEW support on a theater basis. The politics of reassignment of personnel after the start of ODS was a very real issue. The support structure needed the ability to station the GS IEW maintenance detachments, the Corps ATE section, and the SRA in one location for optimum regional support to the MI community.

3) The GS IEW maintenance detachments did not have the capability to perform their full mission. They needed additional transportation assets, TMDE assets, personnel, and training. From a macro point of view the critical need was for a support doctrine for IEW equipment sustainment that both the IEW community and support community could use in sustaining the equipment.

4) Support was fragmented as the GS IEW detachments supported FORSCOM NDI equipment but not many standard systems, the SRAs supported the standard developmental systems, and there was no real support scheme for non-FORSCOM NDI systems as each had its own unique structure. The IEW sustainment plan addressed these problems but did not solve them.

5) EAC support was difficult for SRA 3 to accomplish because the contractors had not supported the systems in peacetime so there was little capability to support them in ODS. The SRA could not fully support the units and therefore additional resources were required from the units and INSCOM in support of these EAC systems as the SRA was reduced to a shipment facility with minor repair capability.

6) The SRA contractor site chiefs did not always follow the directions of the contractor ACOR on site. This resulted in a delay in moving support forward to SRA 2 and restricted the support at SRA 2 when SRA 1 personnel were not reassigned forward to SRA 2. The SRA contractor needed a senior in-country supervisor that could and would respond to the ACOR.

7) When the GS IEW detachments moved forward they provided LRU exchange for standard systems and support for FORSCOM NDI systems, but could not repair LRUs from the standard systems. Additionally some unique support, Dragonfix for one, moved forward with the GS detachment when it was needed in other areas. After the movement of the GS detachments forward the SRAs had little capability, and no spares, for support of the FORSCOM NDI systems.

e. Specific recommendations of Major Froede:

1) The sustainment plans for IEW equipment should be prepared and implemented by the logistics staff (G4 staff) and not the operations staff (G2 staff). Currently there is no one on the G4 staff that understands the sustainment of IEW equipment and therefore the sustainment of IEW equipment is rarely addressed in logistics plans. The G4 staff should have either an IEW staff officer with logistics experience or an IEW

maintenance warrant assigned to the staff to assist in planning IEW sustainment.

2) TRADOC should develop an IEW Logistics/Maintenance Staff Officers Course to provide the MI community with the background to plan IEW sustainment.

3) The logistics and operations communities need to determine and implement doctrine for sustainment of IEW systems at Division and above. One of the biggest problems in the trying to support IEW systems is the lack of doctrine.

David E. Condit
Maintenance SME
IEW Sustainment Streamlining Study

Appendix AS

DA DCSLOG Memo, 21 May 1992, Subject: Implementing Stock Funding of Depot Level Reparables (SFDLR) for Items Not in the Standard Supply System

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR LOGISTICS
U.S. ARMY STRATEGIC LOGISTICS AGENCY
5001 EISENHOWER AVENUE
ALEXANDRIA, VA 22333

50

S: 5 Jun 92

LOSA-SF

21 MAY 1992

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Implementing Stock Funding of Depot Level Reparables (SFDLR) for Items Not in the Standard Supply System

1. At the 2 Mar 92 Council of Colonels for SFDLR, SLA was tasked to develop a policy proposal for items handled outside the standard supply systems. Attached is a proposed methodology to implement SFDLR for non-standard support systems or contractor logistics systems.

2. Request addressees review and provide comments to Strategic Logistics Agency, ATTN: LOSA-SF, NLT 5 Jun 92. SLA will brief this as a proposed methodology to the 9 Jun SFDLR Council of Colonels and the 25 Jun SFDLR GOSC.

3. POC is Mr. John Pierce, (703) 274-4528/29, DSN 284-4528/29, fax extension -4747.

A.R. Keltz

Encl

A. R. KELTZ
Director, Strategic
Logistics Agency

DISTRIBUTION:
COMMANDER,
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LOSA-SF
Implementing SFDLR for Non-Standard Logistics Systems (NSLS)

1. **PROBLEM**: How should the Army fund the purchase and repair of items managed outside the standard supply system, and outside of depot repair programs, now and in the future?

a. This study will focus on near-term options to fund purchase/repair under **existing** non-standard logistics systems (NSLS).

NOTE: The phrase **non-standard logistics systems**, or the acronym **NSLS** will be used generically to include a variety of situations that call for non-standard types of support or funding, as explained in paragraph 3 below.

b. The topic of how the materiel development process should support **emerging** or **future systems** in light of DBOF policy will be addressed at a later date.

2. **ASSUMPTIONS**:

a. **Wholesale stock fund (WSF)**--the Supply Management, Army (SMA) account of the Defense Business Operations Fund (DBOF)--must recoup from users the cost of the items it manages and the repair programs it funds.

b. The **owner** of the item is responsible to pay the cost of procurement, repair, and/or replacement of the item. This means that <u>direct (OMA) funding of repair activities will decline</u> (no more "free" maintenance). It also means that the stock fund will not pay for repairs unless it "owns" (takes responsibility for) the item. Even though the item may physically move from user to a contractor, a unit turn-in document and contractor receipt allows the stock fund to assume "ownership" and responsibility.

c. Fielded systems must be supported, but documentation and funding may change.

d. DBOF's overall goal is prudent or efficient use of DOD resources, not a particular policy designed to promote efficient use. (The policy is not the goal, but a means to it.)

e. For current or future systems, a range of options for logistics support will offer the most flexibility to meet the particular needs of the system at hand, as well as the Army's overall goal of prudent use of resources.

3. **FACTS BEARING ON THE PROBLEM**:

a. There are many types of NSLS to be considered:

(1) **Off-the-shelf commercial** items, which can be repaired most economically by contractors who perform such repairs for the private sector. In some cases the repair cost is funded directly by the user, but in others it may be more economical to contract at the national level for purchases and repairs, for users from any command. An example of this is equipment, like video-cassette recorders (VCR), purchased by Training Aids Support Agency (TASA). TASA bought the equipment with customer funds, but CECOM had funded the TASA contracts for commercial repair, without recouping costs from the user. In accordance with DBOF policy, AMC has directed CECOM not to fund such repairs if it does not recoup the cost.

(2) Fielded systems with multiple Army commands as users, where the system PM fielding plan calls for **contractor logistics support (CLS)** of the item, most often through a **repair-and-return** program from owning unit direct to contractor and back.

- In some cases, a using unit turns in a defective item or component--which if it were a standard item would be a depot-level reparable (DLR) that users have no capability or authority to repair. The user gets another from the contractor or gets the same item back after repair. The user retains accountability for the item (is the owner), and the WSF never becomes the owner.

- In other cases, the CLS program is OMA-funded, and not reimbursed by the owner of the item. There are some cases in which AVSCOM has P7M funds for repair of aircraft and components. Per DALO-RMI, there are no plans to bring this CLS under the stock fund.

(3) Systems with a **single using command, or low-density items**. In these cases, the using command (rather than a system PM or the WSF) pays acquisition and repair costs directly, with Operations and Maintenance, Army (OMA) funds.

b. CLS documentation for some systems (Mobile Subscriber Equipment [MSE], for example) closely resembles the standard supply system. For the purpose of this paper, such systems can be considered as in the standard system. Evolution of other CLS to such quasi-standard documentation is probably the best solution for systems that will remain under CLS for a significant period.

c. **Not** considered in the analysis below, but relevant, are **MACOM repair programs**, for DS/GS-level repairs, where the repair costs are paid directly by MACOM OMA funds. These may remain MACOM OMA-funded programs, or may bear on this problem as the Army moves to a Single Stock Fund (SSF).

d. **Type classification** assigns the stock number, price, code, and other catalog information that is necessary for the item to be managed in the standard supply system. As shown in the examples at TAB A (data from SOCOM), however, for most low-density items, it would be prohibitively expensive.

4. **DISCUSSION**:

a. How or why the Army developed such a wide variety of non-standard logistical support for our systems is irrelevant to the immediate task of deciding how to fund this logistics support in the short term. It becomes relevant to the long-term problem of guiding the materiel development process, but a short-term solution must work within the context of the systems currently fielded.

b. The DOD policy that led to SFDLR is based on the premise that "paying users buy less," regardless of the specific method by which the users pay. However, proliferating non-standard payment procedures hampers the Army's efforts to obtain visibility of total system costs and system (or asset) availability.

c. Proliferating non-standard turn-in/issue procedures also immensely complicates the task of the soldier in the field who has to deal both with the standard supply system and with many exceptional or special repair and funding procedures for a growing number of items. (See examples at TAB B, data provided by CECOM IMMC, of the multitude of repair options for a family of systems, depending on the level of repair required.)

d. On the other hand, there are low-density systems whose scope or purpose is so limited that there is no expected benefit to the Army as a whole from taking these systems into the standard logistics system. For example, if type-classification of a system costs $2M, and its population density is only 20 systems Army-wide, it probably is not worth the cost of turning it into a standard supply item. (See examples at TAB A.)

e. By the same token, where there are few copies of a system and users of the system, there seems to be little or no incentive for the "paying user" to "buy less," and thus little or no cost benefit to the Army of forcing the item or system into the SFDLR mold.

f. For repair-and-return programs which are managed at the national level by one of the WSF NICPs, stock-funding the repair program requires the owning unit or retail stock fund (RSF) to turn-in the item to the WSF, which accepts responsibility upon a contractor notice of receipt, and returns accountability and ownership to the retail level upon return shipment by contractor.

g. For such repair-and-return programs, stock-funding should also include charging the using unit a standard repair price, which should include:

(1) An average repair cost for the item (not the cost the contractor bills the Government for the particular repair job). This average cost can be adjusted annually, like AMDF prices. It should be based on total repair cost paid to the contractor who provides the repair service, divided by number of repairs. In some cases, it may be feasible to average the repair cost over a group of like items, to simplify accounting of actual repair cost per item.

(2) The NICP's cost for contract administration, averaged over number of items managed (or repairs annually, as appropriate.

(3) Annually averaged transportation cost per item (or a number of like items). Cost should be round trip (user to contractor and return to user) unless contract provisions include return transportation in the repair cost. As with the surcharge for AMDF prices, transportation costs are averaged over all users worldwide.

(4) Washout rate; i.e., the averaged annual procurement cost for the number of items expected to be "washed out" of the repair-and-return cycle because they are beyond repair. (This factor assumes that a user will not be penalized for owning the item that happens to fail beyond repair. If there is evidence that the user caused the irreparable damage, a report of survey may be needed to establish that a user must pay for a replacement at full AMDF price with surcharge, not at the standard repair price.)

(5) Using a standard repair price for repair-and-return systems presumes that there would still be a standard purchase price for the user who buys an item without a turn-in (examples: a new user, other than upon initial fielding; the old item lost or already sent to DRMO). Having both a purchase price and a repair price means that systems documentation must distinguish between repair-and-return requests and purchases without turn-in.

5. <u>ALTERNATIVES</u>: It should be the goal to bring NSLS into the standard system, when that is feasible, and as soon as possible. Recognizing that this will not be possible in all cases, or that

a transition period may be needed in others, there are several possible alternatives:

a. Retain CLS, but bring the documentation in line with the standard system. The contract for repair and return should include provision for contractor to provide the NICP notice of receipt and shipment. The shipper (user) should also be required to provide notice of shipment (or turn-in) to contractor and of receipt from the contractor. This is necessary to maintain an audit trail of contractor repairs, and to establish ownership of the materiel at the wholesale level. This also requires systems changes to distinguish between purchase (without turn-in) and repair-and-return, and to charge them at different prices.

b. Develop a non-standard reimbursement to the WSF. This may be necessary in some cases, but is the least desirable option. It should be used only in cases when the contract for repair support stipulates a periodic (for example, monthly) fee regardless of the number of items actually repaired. We're essentially paying the contractor to be on stand-by if we need service. In that case, the contract cost is not tied to repair transactions, and the using command(s) must reimburse the WSF based on other criteria, such as system density in each command.

c. It will not be feasible, or cost-effective, to bring some items or systems into the standard supply system. Following are some suggested criteria for the decision to exempt a system (with its associated repair parts and repair program) from the standard logistics system:

(1) Low density; fewer than N systems Army-wide. (The review process mentioned below may further define N after reviewing the data on such systems.)

(2) Short life expectancy; system is expected to be replaced in less than N years (suggest 2 years as a starting point). The system will not be retained (for example, in reserve component units, or in war reserve stocks) after its replacement is fielded.

(3) High cost of type classification, relative to the value of the system and the associated repair parts.

(4) Finally, a low likelihood that stock-funding (having users reimburse the WSF for issues and repairs) would provide any significant incentive for users to "buy less," or perform better diagnosis before deciding to turn-in for repair, or perform some repairs authorized at the user level, or at DS/GS level. This may be a judgment call, but even if one or more of the other

criteria are met, this factor should also be considered. Approval to exclude a system should be granted only if this criterion is also met by a plausible argument that stock-funding the system would not provide such incentives (for example, that on a particular system there is no possibility of user or DS/GS repair or diagnosis).

d. In using the above criteria to request exception to policy (as discussed below), item managers or PMs may suggest other criteria for consideration. The above criteria are not all-inclusive; the review process may add others.

6. RECOMMENDATIONS:

a. That HQDA formally task AMC and its NICPs to provide information on which systems are currently outside the standard logistics system, in one or more respects:

(1) Items are not requisitioned through standard retail and wholesale systems, or are not billed through standard financial systems.

(2) Maintenance of the system's components is on a repair-and-return basis, not a purchase and turn-in between user and WSF.

(3) Repair contract calls for payment to contractor on a basis other than repair transactions, and the fixed fee (or cost) is not distributed to all users by being included in the repair cost for the item or family of items.

(4) The system is not type-classified.

(5) Repair program for the system is funded by the Program Manager (PM) for the system (the PM has fielded the system, but has not transitioned the repair program to WSF).

(6) Repair program for the system's components (for what would be DLRs on a standard system) is OMA-funded at the national level (AMC P7M, for example). (This does not include MACOM repair programs which are OMA-funded, for repairs at DS or GS level, or even for depot-level repairs at a HQDA-approved Special Repair Activity (SRA).

b. That the tasking to AMC and NICPs include a requirement to provide, for each system identified above, a projected date for transition of each system to the standard logistics system--either through a depot repair program or a contractor-operated program which provides "look-alike" standard documentation.

c. That NICPs provide full justification, using the criteria in paragraph 5c above, for each request that a system be exempted from the requirement (in b above) to transition to the standard logistics system. (Suggested format for requests is at TAB C.)

d. That HQDA develop a process to consider and approve or disapprove the requests for exception to policy referred to in c above. This process should include review of NICP's request by the system PM, the MACOM with primary interest (in the case of single-user systems), and SARDA, ODCSOPS, and ODCSLOG.

e. That approved requests for exception to policy be reviewed every two years, to determine if circumstances warrant continuing the exemption.

JOHN L. PIERCE
Logistics Mgt Specialist
DSN 284-4528/29
commercial (703) 274-4528

TAB A - SOCOM examples, type classification costs
TAB B - IMMC samples, repair options for contractor-support items
TAB C - Data required to request exception to policy (TBD)

DEPARTMENT OF THE ARMY
HEADQUARTERS, U. S. ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333-0001

2 5 OCT 1991

AMCDE-F

MEMORANDUM FOR DIRECTOR, U.S. SPECIAL OPERATIONS RESEARCH, DEVELOPMENT, AND ACQUISITION CENTER, MACDILL AIR FORCE BASE, FL 33608-6001

SUBJECT: Type Classification (TC) Information for Special Operation Forces (SOF) Systems

1. Reference, 12 Aug 1991 information briefing to LTG Thomas, AMC Deputy Commanding General for Research, Development, and Acquisition, subject: Special Operation Forces (SOF) Acquisition Programs

2. During reference briefing, LTG Thomas directed that validated cost data be developed for all AMC managed SOF items that require additional funding to achieve Type Classification Standard (TC-STD).

3. Validated level II cost information for these SOF items is provided at enclosure 1.

4. Enclosure 2 represents the materiel developer's recommended position and action plan for Type Classification of USSOCOM systems assigned to the U.S. Army Material Command for acquisition management.

5. Request USSOCOM provide concurrence/comment as soon as possible. AMC will proceed as indicated unless notified otherwise.

6. AMC point of contact for this action is Mr. Jenkins, AMCDE-F, DSN 284-9209.

FOR THE COMMANDER:

Encl

EDWARD J. BURKE
Colonel, GS
Assistant Deputy Chief of Staff for Development, Engineering and Acquisition - Special Operations Forces

TAB i

CONSOLIDATED TC-STD COST

(LEVEL II VALIDATION, FY92 CONSTANT $'S IN THOUSANDS)

	COST
CECOM	
Public Address Set (PLS), AN/PIH-1	$723
TAMT-50	$2,367
Radio Set, AN/PRC-132, SOHFRAD	$376
EFCS, AN/USC-50, AN/PRC-6	$701
SOCA, AN/GRC-233	$1,707
TVT-5	$2,476
CECOM SUBTOTAL:	$8,350
TACOM	
Desert Mobility Vehicle System (DMVS)	$437
AMCCOM	
RAAWS	$14,000
TOTAL COST:	$22,987

AMC-50 TC ACTION PLAN

TC-STD		NOT TC-STD	
MOST	SITE	DMVS	TAMT-50
LAR	PRTS	RAAWS	EFCS
PAM	RAPS	SOCA	TTBS •
SLAM	ADS	SOHRFAD	LDC 1/2 •
PDM	AN/TSC-122	TVT-5	LDC 4 •
TDFD	FOL		
LRM	IREMBASS		
MPS	MMB		
SOFME	AN/MSQ-85D		
ARABS	MOPOT		
AR2	SORAK		
HISAC	JASORS		
RLW-30	PRC-126		
SOPS	SOFLAM (Use Navy ASU for TC-STD)		
SORFMS	PLS (Additional funding rqd)		
AN/PPN-19	LEWS		

TOT: 32 + 10 = 42

GRAND TOTAL = 42+(8 OTHER)= 50 (SEE NEXT SHEET FOR 8 OTHER ITEMS)

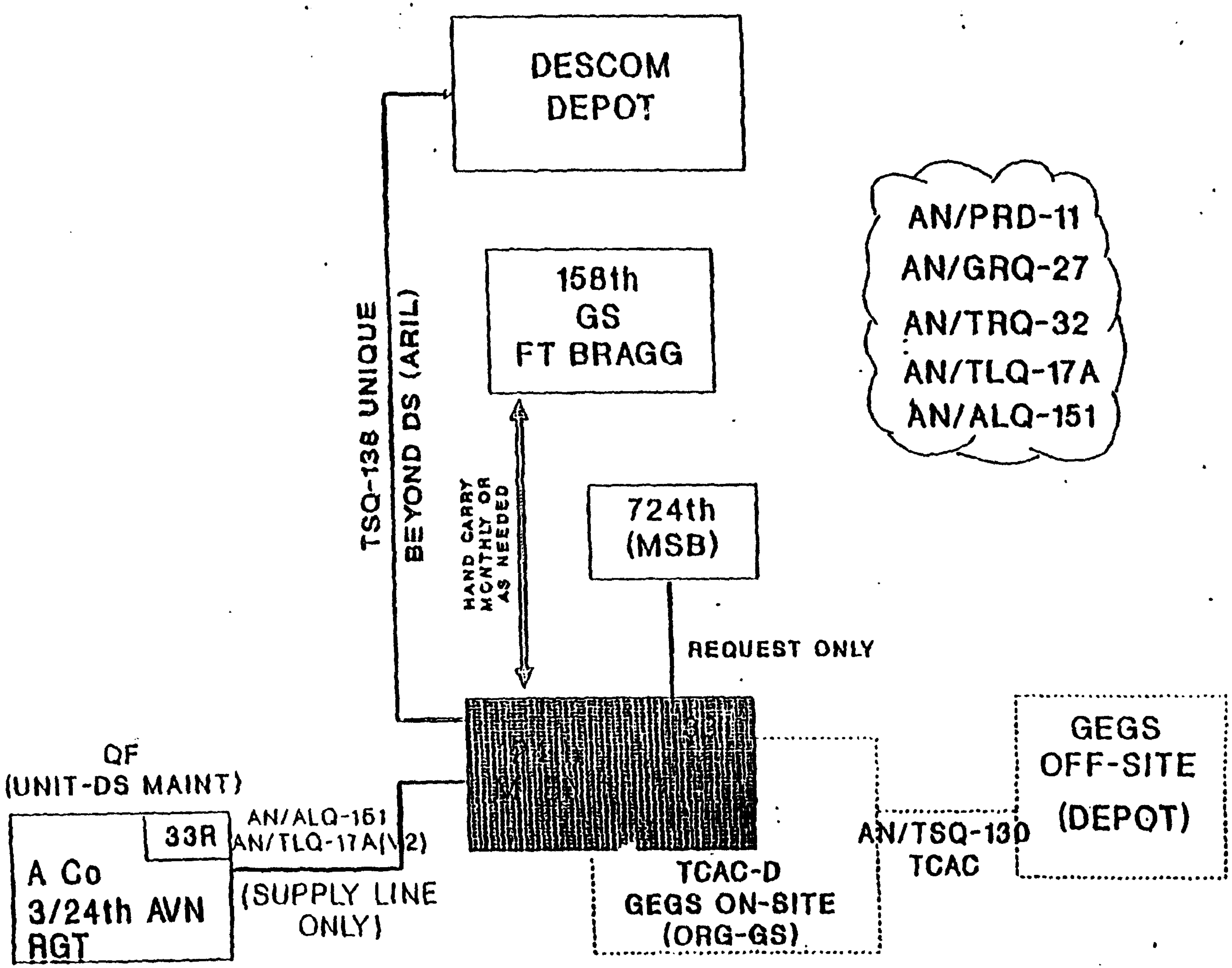
- • Fielded to USASOC
- • Navy managed procurement

24 OCT 91

AMC-50
OTHER CATEGORY

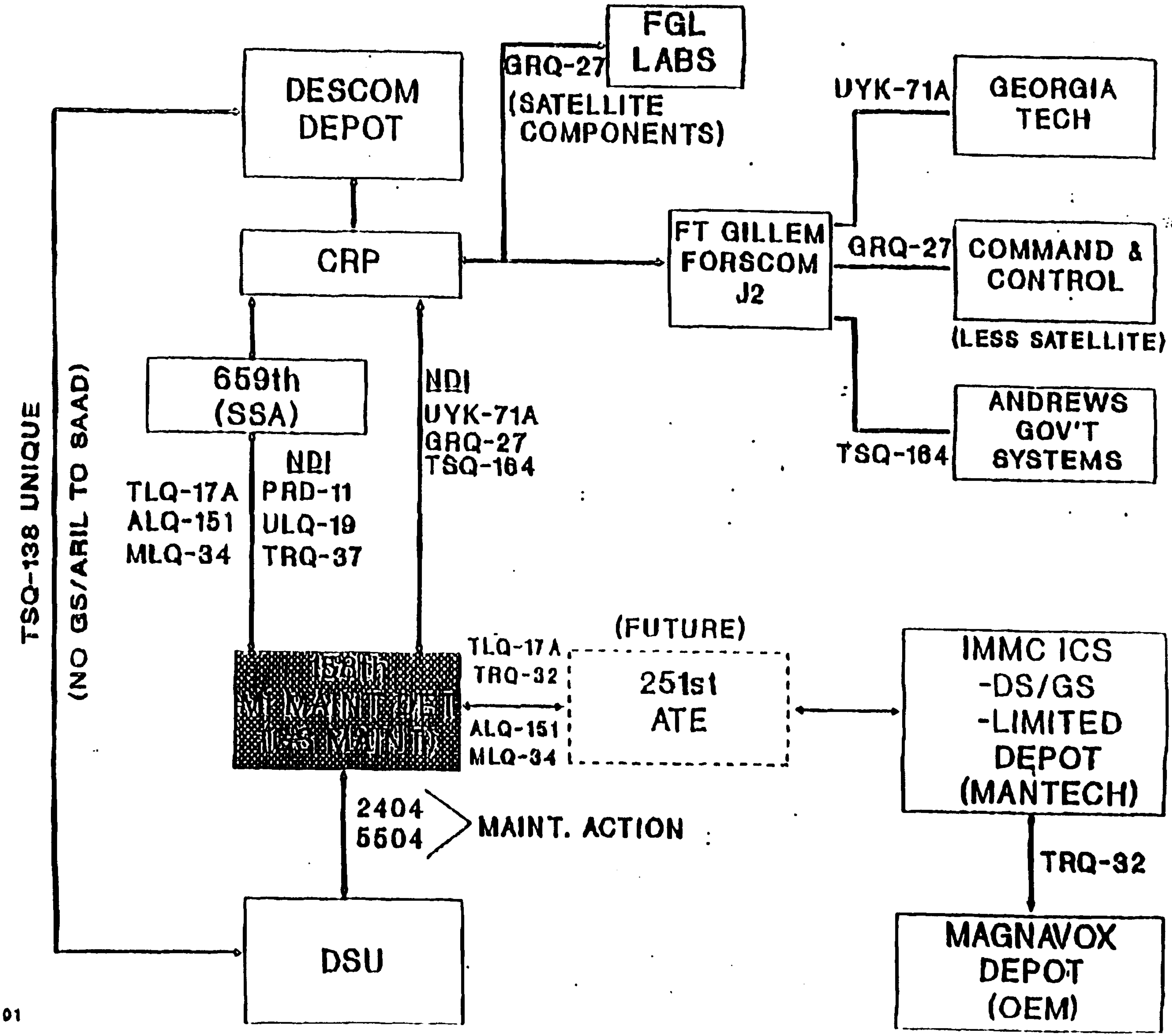
ITEM	REMARKS
1. SOSST	REQMT CANCELLED
2. AN/CSZ-1A	EMBEDDED PROCESSOR
3. KYV-2A	EMBEDDED APPLIQUE
4. SOFNET	COM NETWORK NON-TACTICAL
5. SOFTEC	PROTOTYPE/EARLY DEVELOPMENT
6. DPV	NAVY PROGRAM, FUNDS RETURNED
7. FOREIGN WEAPONS	FOR SOF TRAINING, TC-STD N/A
8. SOICS	PROGRAM TERMINATED

24 OCT 91



TAB B

92099-02



DESCOM DEPOT
CRP
FGL LABS
GRQ-27
(SATELLITE COMPONENTS)
FT GILLEM FORSCOM J2
UYK-71A
GEORGIA TECH
GRQ-27
COMMAND & CONTROL
(LESS SATELLITE)
TSQ-164
ANDREWS GOV'T SYSTEMS
659th (SSA)
NDI
PRD-11
ULQ-19
TRQ-37
TLQ-17A
ALQ-151
MLQ-34
NDI
UYK-71A
GRQ-27
TSQ-164
TSQ-138 UNIQUE
(NO GS/ARIL TO SAAD)
TLQ-17A
TRQ-32
ALQ-151
MLQ-34
(FUTURE)
251st ATE
IMMC ICS
-DS/GS
-LIMITED
DEPOT
(MANTECH)
TRQ-32
MAGNAVOX DEPOT (OEM)
2404
5504
MAINT. ACTION
DSU

92099-01

Non-standard systems - data summary:

AMC:

8 MAY
Phil Dunn
CETHAS
TEAM
THAT
PANS

10 CECOM systems (not sure all are DLRs)
4 CIMMC "
1 AMCCOM " (a "field level reparable secondary end item")
1 MICOM (an "SRA" at Ft Bragg) — it's not an SRA
total: 16 systems with "non-standard supply support procedures"

no TACOM, AVSCOM (???), TROSCOM, CSLA (?????) - sure!

TRADOC - harder to digest; summary, as best I understand it:

Rucker - 6 pages of NSNs of "DLRs that go to Martin Marietta or McDonell Douglas"

Knox - 7 or 8 families that go to various contractors, are funded "free" by depots, or where they don't know the funding policy (meaning, apparently, that Knox doesn't think they're paying) [includes the crazy AMCCOM contract COL Greene wrote about]

"Anon." - several Training Aids Support Center (TASC) and aviation signal items in an RX program thru Ft Rucker

Devens - several CIMMC-like systems (not sure if the same ones)

Monmouth - CECOM items - EADS system (chaplains get 65% credit!)

Coord Logistics Support Program (CLSP) items - Tobyhanna; other items (w/o NSNs) shipped to a variety of contractors; these might be off-the-shelf items

McClellan - TASC items; more CLSP items; STU III items (non-ASF)

Ben Hsn - TASC

Benning - MSE items; an AMCCOM contract for sniper rifles, and Radar Hawk

a very mixed bag; several AMC did not mention; no big surprises.

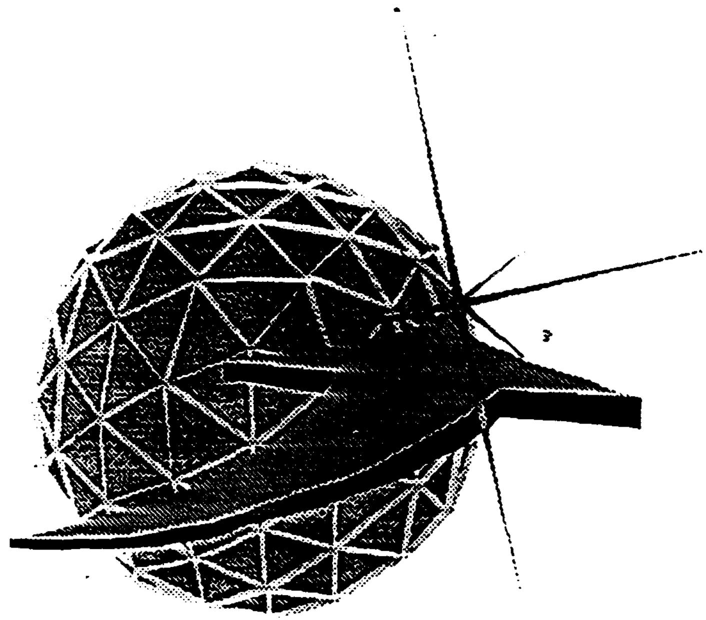
FORSCOM

Several SRAs, several IEW systems CIMMC had mentioned, and a few similar to ones TRADOC mentioned

Appendix AT

Strategic Logistics Agency Information Paper, Undated, Subject: Integrated Sustainment Maintenance (ISM)

INTEGRATED SUSTAINMENT MAINTENANCE CONCEPT



U.S. Army
Deputy Chief of Staff for Logistics
Director of Supply and Maintenance
Strategic Logistics Agency

Strategic Logistics Agency

Information Paper

Subject: Integrated Sustainment Maintenance (ISM)

1. **Purpose.** To provide the background, objectives, concept development and implementation approach for ISM.

2. **Background.**

a. The need to review the Army's maintenance process at levels above Division was first discussed with SLA in July of 1990 by the ODCSLOG Assistant Deputy Director for Maintenance. SLA was asked to evaluate the subject, with tasking formalized in Dec 1990. Subsequent events during ODS made this an even more timely subject.

b. SLA was asked to use a "clean sheet" approach to review both the strengths and weaknesses of current maintenance procedures in a peacetime and wartime environment. This evaluation included the roles of the AC/RC GS units as well as the Army's civilian maintenance workforce and supporting contractors. Evolving Army missions were a baseline input: as were changing forces, equipment, deployment doctrine, budget constraints and (later) ODS experiences.

3. **Objectives of the ISM Concept.**

a. To develop a responsive, seamless sustainment maintenance concept to meet Army needs now and into 21st century.

b. To provide integrated maintenance support in peacetime and project sustainment power in contingencies IAW ALO doctrine.

c. To provide effective sustainment maintenance support in an era of reduced resources.

d. To stress flexibility and ways to tailor rapidly deployable forces to support a variety of preplanned baselines.

4. **ISM Concept Description.**

a. The ISM concept integrates sustainment maintenance at all levels under a single national manager. All civilian and AC/RC military, 40/50-level maintenance resources, to include corps/EAC GS, installation, depot, SRA/contractor will be under the control of this manager in peacetime as well as war. There will be a seamless, "one stop shop" for maintenance at echelons above Direct Support. The ISMM will reside in the AMC organization.

b. The resources controlled by this manager will be trained on appropriate equipment, cross-trained, integrated, force-tailored using building block principles, applied against specific scenarios, and deployed to bring effective sustainment maintenance to the field. The deployed ISM resources will be opcon to the theater/corps commander, but monitored and workloaded by the ISMM.

c. Peacetime support to field forces will be in the form of tailored on-site maintenance; regional maintenance centers; contractor maintenance support; specialized depot maintenance programs (e.g., repair and return); MWO application teams, etc.

d. The ISMM will work with Army field commanders, policy makers (DCSLOG/DCSOPS), PEOs/PMs, WSMs, ILS planners and force developers to devise compatible maintenance concepts and support.

5. **Benefits of Integrated Sustainment Maintenance.**

a. The ISM concept will lead to a better trained, more stable, resilient maintenance force.

b. There will be coherent, preplanned support versus the reactive mode experienced in ODS.

c. Integration of contractors, DOD civilians and military maintenance skills will create a flexible, more efficient and effective support structure.

d. Appropriate rotational training will strengthen the technical skills needed in combat.

e. Contract support will be better managed.

f. Financial visibility of the entire process, including charges, credits, and reimbursements, will be improved.

g. Career development will be enhanced through incentives, improved training, and team building in either military or DOD civilian career paths.

6. Implementation Process.

Steps for ISM implementation include:

a. A concept definition and approval process.

b. Assignment of a single manager and core management team.

c. A peacetime proof of principle prototype.

d. Full scale testing in a deployed/ remote location.

e. Formal acceptance, doctrine, and organizational changes.

1. The ISM Manager, together with core staff members, will reside within the AMC organization.

2. Support for the development of sustainment policies, doctrine, missions, training, and activation/deployment will come from throughout the Army.

3. The ISM Manager will have a broad range of resources (personnel/facilities/ equipment) to integrate, manage, and utilize to meet specific operational requirements.

4. In peacetime, these resources will be used to manage national-level programs; provide services from regional centers (DOL shops at specific installations); provide on-site assistance as required; perform special repair programs (e.g., repair and return); or assist in programs, such as MWO applications.

5. In national emergencies, the ISM Manager will provide timely, appropriate, tailored sustainment maintenance support in theater, backed up by the national-level ISM infrastructure.

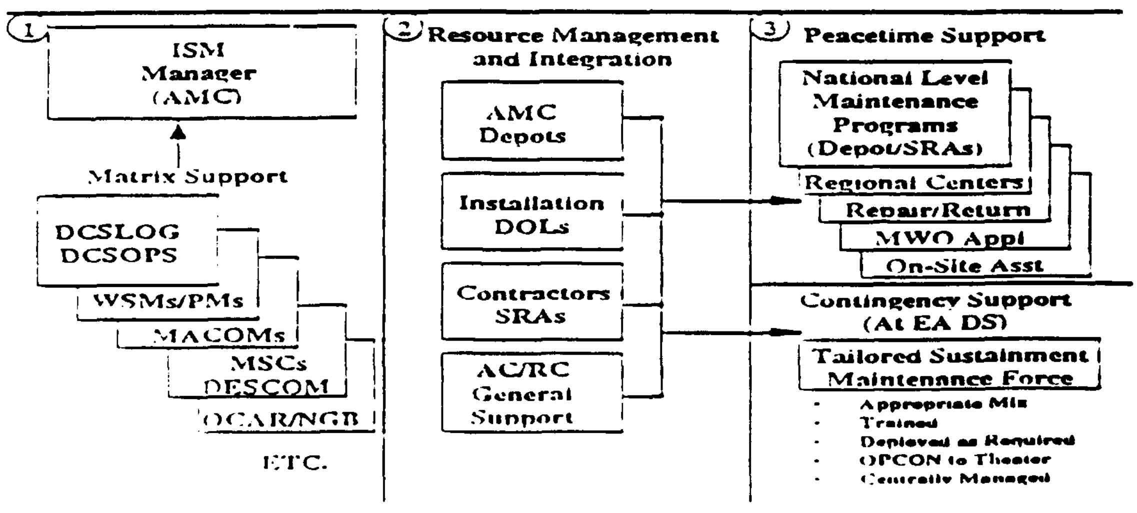


Figure 1. Integrated Sustainment Maintenance (ISM) Concept

Appendix AU

CIMMC Memo, 31 Aug 92, Subject: IEW Streamlining Study - MACOM IPR Minutes, 29-30 July 1992

DEPARTMENT OF THE ARMY
U.S. ARMY CECOM INTELLIGENCE MATERIEL MANAGEMENT CENTER
VINT HILL FARMS STATION
WARRENTON, VIRGINIA

22186-5077

REPLY TO
ATTENTION OF

SELIM-IEW (700)

31 AUG 1992

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: IEW Streamlining Study - MACOM IPR Minutes

1. Draft minutes and enclosures are herein provided for 29-30 July MACOM IPR. Recommended changes must be submitted in writing NLT 25 Sept 92. "No comment" will be considered concurrence and minutes will be finalized accordingly.

2. Minutes for 23-24 June MACOM IPR are now final. Page 1, and pages 13-16 have been changed as indicated by underlined segments. These pages replace corresponding pages of the draft submission, and are considered final.

3. POC is the undersigned, SELIM-IEW, DSN: 229-5248/5254.

4. CECOM Bottom Line: THE SOLDIER.

Encl
as

Dennis F. Dutton

DENNIS F. DUTTON
Project Officer, IEW
Sustainment Study

DISTRIBUTION:

Commander, FORSCOM, ATTN: FCJ4-SM (Mr. Serrentino)
Commander, INSCOM, ATTN: IALOG-R (Mr. Demy)
Commander, USAICS, ATTN: ATSI-CDG (Mr. Lovely)
Commander, USASOC, ATTN: AOLO-P (Mr. Richardson)
PEO-IEW, ATTN: SFAE-IEW-SE (Mr. Hume)
Director, CIMMC, ATTN: SELIM-IEW (Mr. Riddle)

cf:
HQDA, DCSLOG, ATTN: DALO-SMC (Mr. Demchak)
HQDA, DCSINT, ATTN: DAMI-PII-I (MAJ Maguire)
HQDA, DCSOPS, ATTN: DAMO-FDI (MAJ Andrew)
HQ Army Materiel Command, ATTN: AMCLG-SI (Mr. Shelton)
Commander, CECOM, ATTN: AMSEL-LC
Commander, CECOM, ATTN: AMSEL-LC-LM-EN (Mr. Mabray)
Commander, CECOM, ATTN: AMSEL-LC-SM-S2 (Mr. Travisano)
Director, CIMMC, ATTN: SELIM-DIR
Director, CIMMC, ATTN: SELIM-T

SELIM-IEW

MEMORANDUM FOR RECORD

SUBJECT: IEW Streamlining - Minutes of MACOM IPR, 29-30 Jul 92

1. This memorandum furnishes subject minutes for information, necessary action, and documentation.

2. The agenda and a copy of the attendee list are provided as Enclosures 1 and 2, respectively.

3. Minutes herein reflect general administrative information, detailed discussions, and current taskings.

4. **General Administrative Information**

a. The IPR was conducted at CIMMC, Vint Hill Farms Station, VA, from 0800, 29 July, to 1700, 30 July 1992.

b. This IPR was conducted primarily in briefing or discussion format to provide the study group principals and their representatives with an update on the progress and direction of the study.

c. Mr. Dutton provided copies of the 16 June Fort Bragg Trip Report and of the 23-24 June IPR minutes.

d. After administrative announcements, attendees introduced themselves.

e. The next MACOM IPR was tentatively scheduled for the first week in September. CIMMC will provide announcement letter specifying location, time, etc.

5. **Detailed Discussion**

a. **USAREUR Trip**

(1) Mr. Riddle said the trip was enlightening. No two units receive support in the same manner. Some units go directly to CIMMC or the SRA, and others follow traditional routes. There is a severe problem with unaccounted spare parts that seem to be lost somewhere in Europe; the team heard of an instance involving 16 MILVANs of parts that had not been inventoried or otherwise properly accounted for.

(2) Since 1 Apr 92, the effective date of stock funding of depot level reparables (SFDLR), the CIMMC SRA in Pirmasens had received an average of only five work orders a month. Previously, the SRA had received an average of 200 work orders a month.

(3) There was substantial discussion concerning the 204th MI Battalion (Bn). A major concern for the 204th is the level of non-IEW DS support in the Augsburg area. Because support units are moving out of Augsburg, the 204th currently has no DS support except that provided by their organic IEW section. There is no supporting GS maintenance detachment. The 204th has no effective supply support. The 200th TAMMC told them to delay submission of supply requests until after they moved. The bottom line is that there is no effective IEW GS support in USAREUR except for the CIMMC SRA. Most IEW systems are supported by contractors now, so the problem is not as bad as it seems.

b. **Study Output Products** (Encl 3)

(1) Mr. Dutton stated the final output products will be comprised of four volumes: the main report, study group history, the study group significant documentation, and a classified volume of system support information.

(2) Mr. Dutton emphasized the requirement of the study group to remain objective in its evaluation of the draft documentation and proposals presented for review. In this same regard, whatever proposals are forthcoming are to be the position of the agencies represented by the study group menbers.

(3) Mr. Dutton stated the draft study group products will propose recommendations for implementation. He stressed the importance of quality staffing amongst the agencies represented on the study group to ensure that everyone is in agreement and fully understands what the study group recommends.

(4) Mr. Dutton advised that group participation towards compiling Volumes II and IV is critical to the success of these products.

c. **GS Force Structure** (Encl 4). Mr. Serrentino updated the study group on the Total Army Analysis (TAA) process with respect to general support (GS) unit capabilities and FORSCOM's proposals for GS unit Table of Organization and Equipment (TOE) changes to meet required manpower cuts.

(1) Tentative TAA-99 results indicate there will likely be only two IEW GS elements Army-wide, one in CONUS and one in Europe. FORSCOM will have only one IEW GS repair platoon. Considering the extensive mission requirements, FORSCOM feels this reduction is not feasible.

(2) In order to meet required manpower cuts, the FORSCOM proposal would consolidate COMSEC/IEW support and ATE capabilities into three platoons, would save 288 spaces Army-wide, and would align diagnostics and repair capabilities. The proposal recommended the consolidated COMSEC/IEW/ATE platoons be placed at Forts Bragg, Lewis, and Hood, and recommended one platoon for Europe. Requirements for Korea and Panama were not addressed.

(3) A timely decision on the FORSCOM proposal will be reflected in the final proposal of the IEW Streamlining Study.

(4) Mr. Serrentino stated that the related SLA studies, such as the Logistics Support Group study, lean toward this type of support with contractor augmentation.

d. **Seoul SRA**. There was limited discussion on the existence of an SRA-like TDA augmentation to the 501st MI Brigade (Bde). Military personnel manning the element are from the 532d MI Bn and perform GS level support on the UYK-71A. There were questions about who funds the element and who provides the manpower (in particular, a GS-12 position). There is a possibility that this position is provided by INSCOM's MSA-V or by Tobyhanna Army Depot. Mr. Bazemore stated he would attempt to ascertain if INSCOM provided the space. Mr. Dutton reiterated that all initiatives affecting the study group's proposals must be reviewed.

e. **BOIP Process Cycle** (Encl 4.1). Mr. Lovely, U.S. Army Intelligence Center and School (USAICS), briefed a general description of the Basis of Issue Plan (BOIP) process and described how this process affects the acquisition system.

(1) The BOIP process requires 295 days from initiation to final result if there are no obstacles. Members of the study group felt this process could be reduced. One suggestion would change the process so that minor changes will not necessarily require a complete revision (a restart from the beginning) of the BOIP. In addition, it was agreed that the materiel developer should coordinate with the BOIP developers prior to official process initiation.

(2) Mr. Serrentino requested that the study group ascertain whether a BOIP could be processed if a requirements document did not exist. Mr. Lovely said he would research the question and provide an answer.

(3) There was discussion as to whether the study group should be concerned with the BOIP process as it does not lie within the study's parameters or capabilities. The study group decided to formally identify, in its acquisition documentation findings, the fact that the BOIP process has historically been, and continues to be, a problem.

(4) Mr. Dutton updated the status of ASPO systems and their relation to the study. Due to the classification of some of the ASPO systems, the study group can only review approximately 80% of the requested material. He was assured by BG Adams of DA DCSOPS that this material would be available shortly. Mr. Dutton reiterated that ASPO will remain a distinct part of the Streamlining Study. In addition he stated that a coordinated position paper from DCSOPS ASPO would suffice and would be included in the study.

f. **Non-Standard Logistics Support** (Encl 5). Mr. Pierce of SLA, briefed the study group and stated both SLA and the IEW Streamlining group are seeking the same objective, but from different approaches.

(1) SLA assumes that wholesale stock fund (WSF) must recoup costs. In line with this requirement, other principles of WSF include: item owners pay for item repair, it must support fielded systems, and provide a flexible approach to current systems. The long term goal of WSF is to manage the materiel development process.

(2) In providing examples of nonstandard systems, Mr. Pierce noted commercial off-the-shelf (COTS) items, contractor logistics support (CLS), low-density/single- user items, and items not requisitioned or billed through standard logistic and financial systems.

(3) From the perspective of stock funding of depot level repairables, some of the reasons for standardizing the systems include: nonstandard systems impair visibility of the asset position and true system costs, require complex turn-in and repair procedures, reduce incentives for diagnosis and repair in the units, and make the force more dependent on contractors in wartime.

(4) There was extensive discussion concerning AMDF repair costs and surcharges. Mr. Pierce stated the types of charges for a standard repair price are similar to a surcharge,

but would be a surcharge on a repair price rather than on an acquisition price.

(5) Mr. Pierce completed his briefing stating the bottom line of Non-Standard Logistics Support is to task NICPs to report all nonstandard systems, to have the PMs or NICPs provide target dates for transition to standard logistics systems (or request justified exemptions from standard systems), and to have HQDA develop a process to review exemptions from the requirements.

g. **Discussion of Proposed Support.** Agenda topic broke out into several general discussions. Mr. Dutton briefly revisited the study background, task drivers, the taskings, integration, streamlining of the battlefield sustainment structure, and system analysis.

(1) While discussing acquisition as related to sustainment trends, it was noted that emerging technology should extend fix-forward capability without encumbering units with more logistic requirements. Past trends have been 15-20 year materiel life cycles, multiple systems, system operational independence, stable resourcing, and front end funding. This situation is transitioning to a resource-lean future characterized by sharply reduced life cycles, NDI/COTS systems which are firmware-driven with rapid prototyping, numerically fewer systems with increased capabilities, and automated system interoperability.

(2) There was some discussion of Reserve Component support requirements and National Guard participation in the study. Mr. Serrentino reemphasized that FORSCOM does not speak for the National Guard, but that FORSCOM has kept National Guard Bureau (NGB) informed and invited them to participate. Mr. Serrentino indicated he would obtain the NGB representative's name and forward it to Mr. Riddle.

(3) Mr. Wilson briefly discussed Maintenance 2020, the Ordnance Corps' Future Vision initiative. Electronics Maintenance Vision and the Ordnance Maintenance Vision are in draft only and have not been approved. It's concepts include an "FRA," a mobile, readily identified, deployable, depot level support activity. Mr. Wilson also discussed:

- A predictive maintenance system in which equipment faults are addressed prior to failure by analytical prediction based on reliable historical failure data and on-board sensors. There would be no operator/maintainer; the system would be maintained by divisional or higher maintenance teams controlled by a Maintenance Operations Center (MOC).

- Future maintenance concepts with three categories of maintenance: the sustainment level, which deals with the industrial base; the operational level, which deals with the FRAs (the in-theater support elements); and the tactical level, which would include operator/crew and field maintenance.

- Possibilties of a three-level maintenance system with a base station test facility at both brigade and division level, a common test set (CTS) which will operate forward with maintenance support teams (MST), and a great deal of emphasis on technology and built-in test/built-in test equipment (BIT/BITE). Finally, it is likely that there will be an operator/maintainer who will have some unit or on-board spares with which to fix the system.

h. **Discussion of XRA** (Encl 6). Mr. Dutton's emphasized use of the letter "X" was to avoid confusing the proposed support activity with an SRA or FRA and is not to be confused with some of the depot activities which the study group is reviewing. The XRA is <u>not</u> an Army standard SRA under paragraph , AR 750-1, nor does it match the deployed FRA of the AMC initiatives.

(1) Discussion of Stock Funding of Depot Level Reparables indicated that there are two different prices to be considered: standard and net. The standard price is the actual AMDF price with updated acquisition cost, price stabilization, inventory losses, and transportation costed together with no anticipated turn ins. The net price is the standard price with credit allowed for turn in.

(2) Of the net price, there are items which may not be required if the work is performed at an XRA, such as price stabilization and perhaps replacement of washouts. There would be no inventory losses as they are controlled by the XRA. The logistics and transportation costs may not be required or may be less.

(3) The result is a standard repair/return price. There is no acquisition cost involved in this concept, just repair and return to the unit. Standard repair/return price would be comprised of the actual cost to repair plus allowance for washouts, XRA overhead, and transportation cost.

(4) There was discussion of the various logistical facets of the SRA and FRA, their location and ability to support tactical MI assets on the battlefield and in peacetime, and the location of spare parts and LRUs. The flow which Mr. Dutton recommends is a repair and return concept. Presently the flow goes from the unit to the DISCOM to GS element. Objective Supply Capability (OSC) would be installation driven. Under the XRA recommendation, the flow would go from the unit directly to the XRA. There would be no losses, and the audit trail would go through the Materiel Manager. The XRA would repair and return equipment based on where the equipment originated; i.e., to the unit if coming from them or to the DISCOM if a DISCOM spare or if forwarded by them to the XRA.

(5) The recommended flow codifies what the actual flow is today but with a new, streamlined organization to manage it. It propagates the seamless logistics flow from NICP to the user, emphasizing a direct flow between the user, the XRA, and the NICP.

(6) Mr. Dutton described the specifics of the IEW repair activity support and the funding, request and issue, and hardware flows within an XRA concept (see Enclosure 6).

(7) On Thursday, Mr. Dutton continued discussions of the XRA by describing the characteristics of the XRA and its core. The XRA would have the capability to expand as required, provide area-based forward support, be tailored from a generic core base, and provide a secure repair/storage environment. The XRA would be comprised of personnel from military GS detachments, depot level support activities, logistics assistance representatives, and omnibus contractors. This core would have the capability to provide site management, supply management, transportation, and some maintenance. Added to the core would be original equipment manufacturer (OEM) modules as required to supplement the support capabilities of the XRA.

i. **Discussions of the "Outline of Future Support" Memo** (Encl 7)

(1) Mr. Serrentino asked about the purpose of the memo. Mr. Dutton explained that it was the objective of this document and its discussion amongst the group to provide him with the data which he required to do an eventual concept paper which flushes out the details of the study group's objective. It was decided by the study group that this was the point at which all

options should be addressed prior to discussing the details of the document.

(2) After extensive discussion the study group developed three options. There were three assumptions made in discussions concerning these options: that there would be adequate resourcing, that there would be a Memorandum of Understanding (MOU) which would minimize training distractors, and that Readiness Based Maintenance would be the driver. These options were: 1) to maintain status quo, 2) to adopt a MACOM-focused support structure, 3) or the XRA concept (see Encl 8). Pros and Cons were identified and considered for each option prior to soliciting group consensus.

(3) The representatives from CIMMC, TRADOC, PEO-IEW, and AMC supported Option 3, the XRA; FORSCOM supported Option 3 on the stipulation that it be tied to SSF and ISM. The INSCOM representative supported Option 2, MACOM-focused support.

(4) During discussions on qualitative and quantitative analysis of the options, COL Hemenway stated that cost must be addressed when being presented to the HQDA staff. If no quantitative savings can be shown, then it was imperative that a qualitative increase, at no additional resourcing cost, be shown. Mr. Dutton stated that he could not guarantee that there would be no increase but that there would be other long term savings which would off set any short term increases.

(5) Discussions evolved to development of milestones and an XRA test plan. The study group decided that a test plan would be developed within thirty days of approval of the concept and that an implementation plan would be developed within sixty days of approval of the test plan. Next a demonstration plan with a linkage to SLA would be completed within 30 days. This demonstration would be conducted either in line with the Fort Hood SLA demonstration, with the TRACKWOLF/AHFEWS linkage, or in Korea.

(6) In line with this discussion, but not tied to the demonstration, was contractor sustainment and its movement under a single organization. The actions required in support of this initiative are:

- to identify systems with contract sustainment support to include terms

- to create a system-by-system, timephased transition plan which includes management, funding (as appropriate), resources, and contracting responsibility.

(7) The study group completed a line-by-line review of the Proposed Future Support Memorandum and chose the MSSA option as the XRA supply support option. Upon completion of the review, Mr. Dutton stated that it was his goal to have a revised proposal document to the study group members within two weeks (14 Aug 92).

j. **Reserve Support Discussions** (Encl 4). Mr. Serrentino briefly updated the study group on ongoing Reserve Component support initiatives and the Expansible CEWI Battalion. Highlights of this briefing were as follows:

(1) Based on the TAA 99 results, the FORSCOM force structure proposal eliminates the separate Radar/ATE platoons in the ARNG and consolidates Radar/ATE assets into the Signal platoons, the quantity of which remains the same. The number of USAR units would also be unchanged.

(2) The number of Reserve Training Sites-Intelligence (RTSI) will be decreased from five sites (Forts Dix, Sheridan, and Gillem, Camp Bullis, and Hamilton AFB) to three RTSIs (Forts Sheridan and Gillem, and Hamilton AFB).

k. **IPR Wrap-Up**. Mr. Dutton ended the formal portion of the IPR by reiterating the study group's charter and requirements. IPR wrap-up highlights include the following:

(1) Mr. Dutton asked the participants for a status of attendance and recommended dates for General Officer In-Process Reviews (GOIPR). All participants were still checking. AMC indicated they would host the GOIPR and that open dates were 14-22 Sep 92 or 6 Oct 92. As the MI Relook meeting was scheduled for 6 Oct 92, it was decided to consider holding the GOIPR in conjunction with the MI Relook meeting.

(2) Mr. Dutton reiterated that he would like to be able to brief the Executive Summary and to have a draft of the Final Study Products completed by the end of August.

(3) The taskings to come from the IPR were reviewed. These taskings included the following:

- MACOMs will provide available timeframes for the September GO review to be held at AMC. Suspense: 5 Aug 92 (I2212-002)

- MACOMs will provide list of attendees for 1 September IPR. Suspense: 14 Aug 92 (I2212-003)

- MACOMs are to verify all study principals have up-to-date clearance information on file with the SSO at VHFS. Suspense: 7 Aug 92 (I2212-004)

- MACOMs will provide position papers on next iteration of the Streamlining study proposal. Suspense: 27 Aug 92 (I2212-005)

- MACOMs will reply to finalized decision/concept document. Suspense: 27 Aug 92 (I2212-006)

- MACOMs are to review and update flowcharts. Suspense: 7 Aug 92 (I2212-007)

- MACOMs will reply to finalized decision/concept document. Suspense: 27 Aug 92 (I2212-008)

- FORSCOM will provide status of request for IEW force structure changes (input to the TAA 99 process). Suspense: 4 Aug 92 (I2212-009)

- FORSCOM will provide GS/NDI workload data for submission to TAA process. Suspense: 21 Aug 92 (I2212-010)

- FORSCOM will coordinate recommendation on where financial support should be interjected in relationship to options 2 and 3 of the Streamlining study. Suspense: 14 Aug 92 (I2212-011)

- FORSCOM will provide feedback data - SLA/TSM. Suspense: 7 Aug 92 (I2212-012)

- TRADOC is to provide answer to whether DA and TRADOC have agreed on information required for BOIP/QQPRI for systems without approved requirements documents. Suspense: 14 Aug 92 (I2212-013)

- INSCOM will provide information concerning GS-12 in Seoul SRA. Suspense: 27 Aug 92 (I2212-014)

- CIMMC will release finalized decision/concept document. Suspense: 18 Aug 92 (I2212-015)

- CIMMC will release draft output products. Suspense: 31 Aug 92 (I2212-016)

6. **Other Current Taskings**

Number	Action Item	POC	Suspense
I2100-008	Set up interview w/CWO Perez	INSCOM	**June IPR**
I2119-002	Interview OEM contractor	CIMMC	**ASAP**
I2149-005	Revise flowcharts	MACOMs	**ASAP**
I2149-006	Provide feedback on NDI systems	FORSCOM	**19 June**
I2149-011	Provide TROJAN SPIRIT info and revised flowcharts	INSCOM	**8 June**
I2149-012	Provide remaining data requirements	USASOC	**12 June**
I2149-016	Identify General Officers to be briefed	MACOMs	**25 June**
I2212-001	Provide USAREUR Trip Report	CIMMC	15 July

Highlighted suspenses reflect overdue status or immediate requirments.

IEW BATTLEFIELD SUSTAINMENT
MACOM WORKING IPR, 29-30 JULY 92
USACIMMC, VINT HILL FARMS STATION
WARRENTON, VA 22186

AGENDA

29 JULY

0800-0815	WELCOME/INTRODUCTIONS	CIMMC
0815-0830	ADMINISTRATIVE REMARKS	CIMMC
0830-0915	EUROPE TRIP REPORT	CIMMC/BDM
0915-0940	STUDY OUTPUT PRODUCTS	CIMMC
0940-0945	STUDY PRINCIPALS ONLY	
0940-1000	----- BREAK ---------	
1000-1030	GS FORCE STRUCTURE	FORSCOM
1030-1100	BOIP PROCESS CYCLE	CIMMC/TRADOC
1100-1130	SLA NON-STD SYS: ASFDLR	
1130-1300	LUNCH	
1300-1630	DISCUSSION OF PROPOSE SUPPORT (AC) - STUDY BACKGROUND - UNIT LEVEL - "X"RA	CIMMC/GROUP

30 JULY

0800-0815	RECAP DAY 1	CIMMC
0815-1130	DISCUSSION OF PROPOSED SUPPORT (CONTINUED)	GROUP
1130-1300	LUNCH	
1300-1500	RESERVE SUPPORT DISCUSSIONS	FORSCOM/GROUP
1500-1630	IPR WRAP-UP - STUDY BACKGROUND	CIMMC

IEW STREAMLINING STUDY GROUP IN-PROCESS REVIEW

List of Attendees

29-30 July 1992

Attendee	Office	Telephone Number
Mr. Ralph Riddle	CIMMC, SELIM-IEW	DSN 229-5047
Mr. Dennis Dutton	CIMMC, SELIM-IEW	DSN 229-5794
MSG Richard Lawrence	CIMMC, SELIM-IEW	DSN 229-5794
Mr. Glenn Taillie	CIMMC, SELIM-IEW	DSN 229-5794
CPT John Loomis	CIMMC, SELIM-IEW	DSN 229-5794
Mr. Pete Hume	PEO-IEW	DSN 229-5934
Mr. Al Lindley	PM-SW	DSN 229-6828
Colonel Robert Whitney	FORSCOM J2	DSN 367-5042
Mr. Dick Serrentino	FORSCOM J4-SM	DSN 367-7284
Mr. Dwight DeVoss	FORSCOM J2	DSN 367-6429
Mr. Tom Carson	FORSCOM J2	DSN 797-3173
Mr. Roy Bazemore	INSCOM	703-706-2840
Mr. John McMahon	INSCOM, MSA-V	DSN 229-5840
Mr. Jim Whynot	INSCOM, MSA	DSN 229-5841
Mr. Robert Lovely	TRADOC, USAICS	DSN 821-5579
Mr. Don Wilson	OMMCS (ATSK-CCI)	DSN 746-8816
Colonel J. B. Hemenway	HQDA, ODCSINT	DSN 223-6396
Major Tom Maguire	HQDA, ODCSINT	DSN 227-4714
Mr. Helmut Schelenz	HQDA, ODCSLOG	DSN 225-3280
Mr. Bill Shelton	HQ,AMC, AMCLG-SS	DSN 284-9311
Mr. William Mabray	CECOM	DSN 992-2343
Mr. David Nicholas	BDM, International	804-596-6843
Mr. Robert Klebo	BDM, International	804-596-6843
Mr. Charles Nusbaum	BDM, International	804-596-6843
Mr. David Condit	BDM, International	DSN 229-5794
Mr. James Brown	ManTech (DAMI-POS)	703-756-2345
Mr. Ray Chamberlain	ManTech (DAMI-PIM)	703-756-2345

Enclosure 2 to IEW Streamlining Study
IPR Minutes, 29-30 July 92

STUDY FINAL PRODUCTS

EXECUTIVE SUMMARY (10 PAGES OR LESS) ‹BDM/IMMC›

BRIEFING CHARTS ‹IMMC›

VOLUME I: MAIN REPORT (APA FORMAT) ‹BDM›
ABSTRACT
BIBLIOGRAPHY
•CITED REFERENCES
•ADDITIONAL REFERENCES

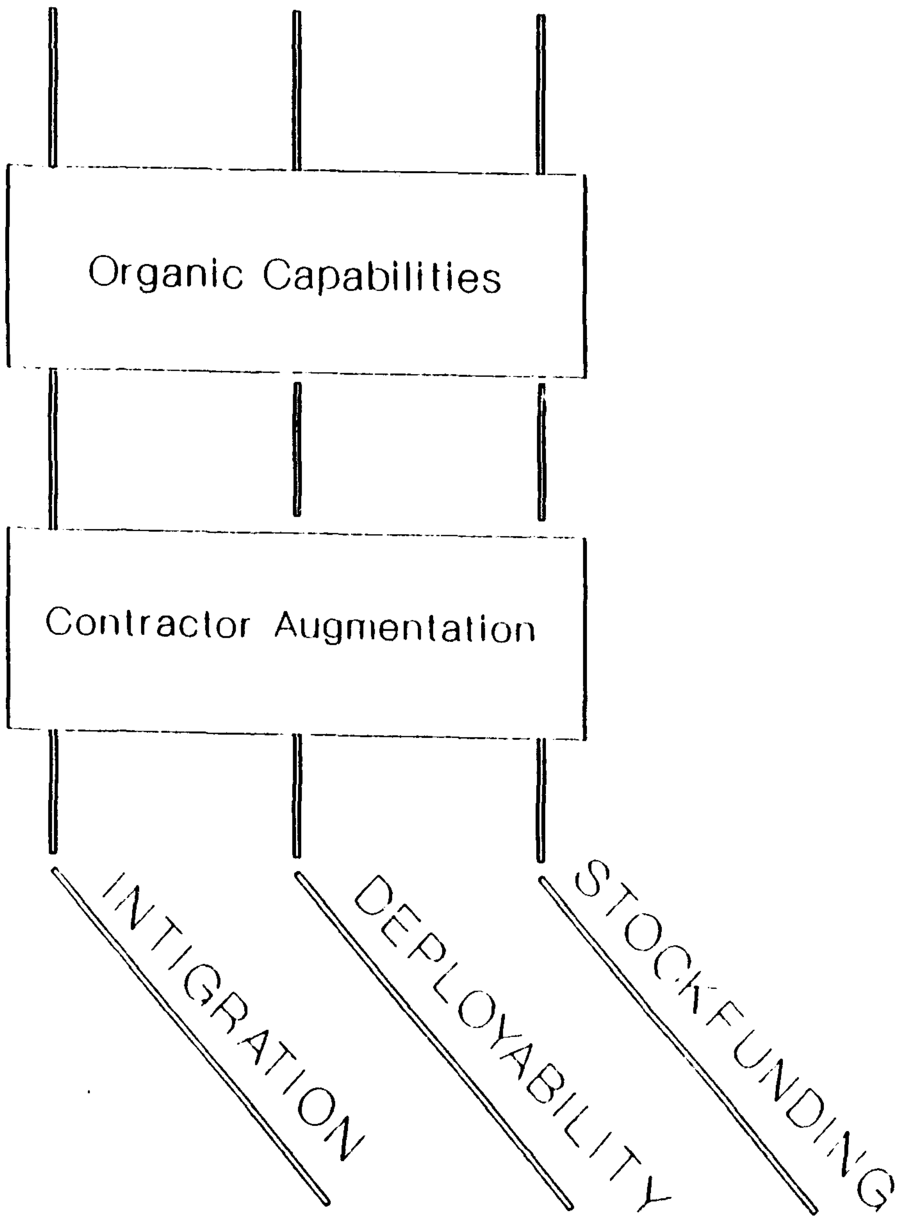
VOLUME II: KEY MEMOs/MSGs (HISTORY) ‹BDM›
TASKING
FOLLOW-UP MEMOs/MSGs
STUDY PDD
CONCEPT PAPER (TBD)
MACOM POSITION PAPERS (TBD)

VOLUME III: IPR MINUTES ‹BDM›
TRIP REPORTS
SIGNIFICANT MEMOs ‹BDM/IMMC›
•TAA MEMO
•ELECTRONICS SPT CONCEPT (ORDNANCE SCHOOL) (TBD)

VOLUME IV: (CLASS) SYSTEMS SUSTAINMENT ‹BDM/J&B›
MAP OF SYSTEM DEPLOYMENT & MAINT ORG (WORLD-WIDE)
FLOWS BY THEATER
FLOWS BY SWA (STEWART PLAN)
SYSTEM SPECIFIC ‹BDM/J&B›
•3 PHASES
•CURRENT FLOW WITH RESOURCE SUMMARY
••HORSEBLANKET ‹IMMC›

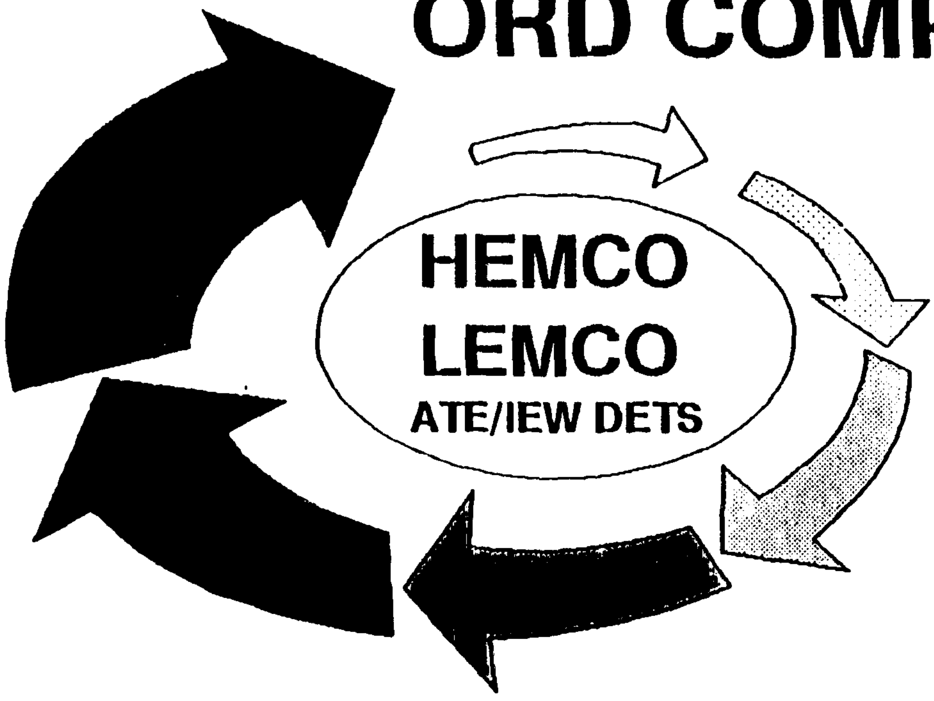
XSUM

Enclosure 3 to IEW Streamlining Study Group
IPR Minutes, 29-30 July 92


Organic Capabilities
Contractor Augmentation
INTIGRATION
DEPLOYABILITY
STOCKFUNDING

GS TOE CONVERSIONS

ORD COMPANY



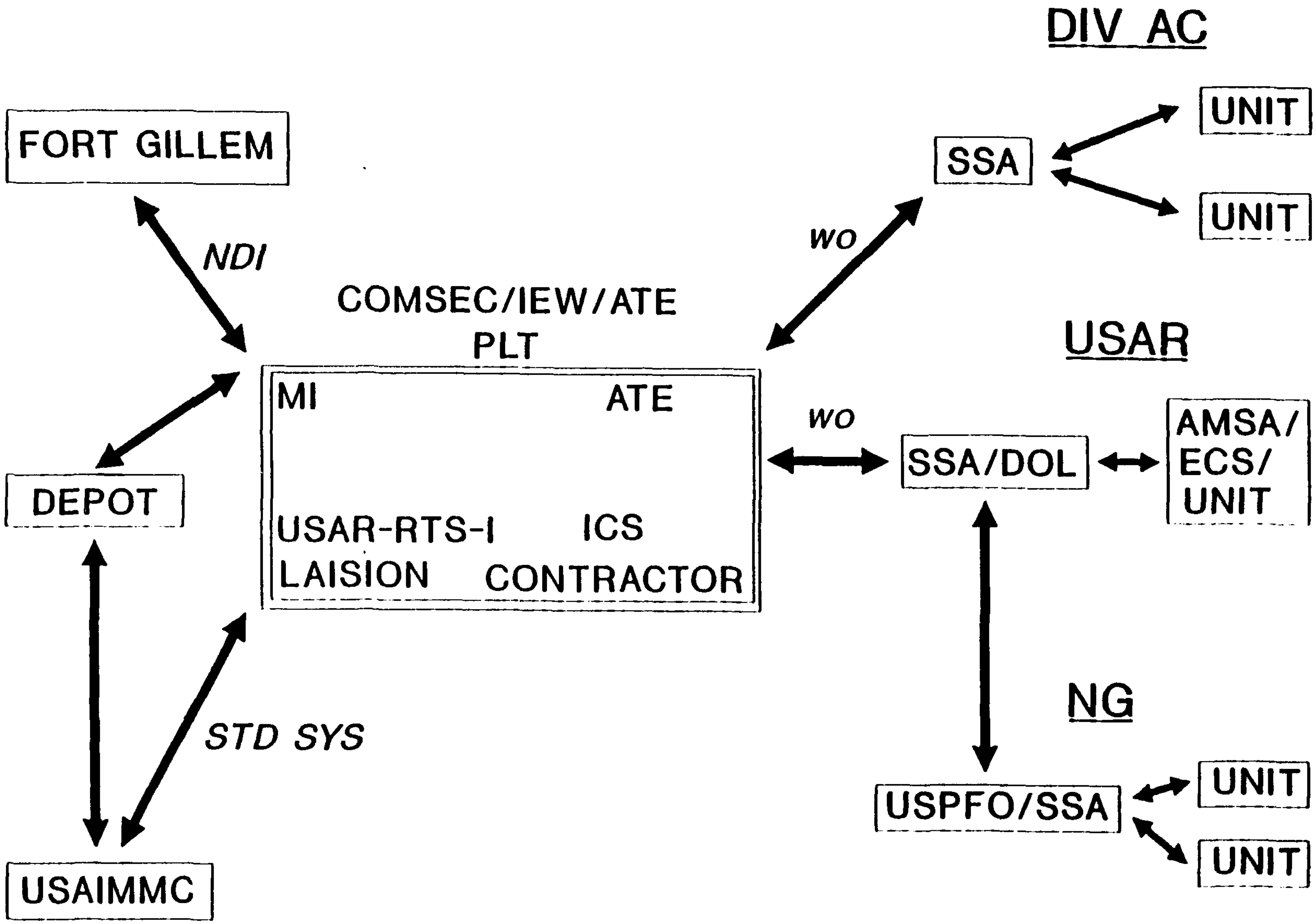
Enclosure 4 to IEW Streamlining Study Group IPR Minutes 29-30 July 92

FORCE STRUCTURE EVOLUTION

	SPACES	FORSCOM	USAREUR	ARNG	USAR	TOTAL
TAA 99 RESULTS						
BASE COMPANY	77	6	1	35	10	52
SIGNAL	40	6	1	30	5	42
RADAR/ATE	31	8	1	11		20
COMSEC/IEW	30	1	1			2
FORSCOM PROPOSAL						
BASE COMPANY	77	6	1	35	10	52
SIGNAL/RADAR/ATE	46	6	1	30	5	42
COMSEC/IEW/ATE	35	3	1			4

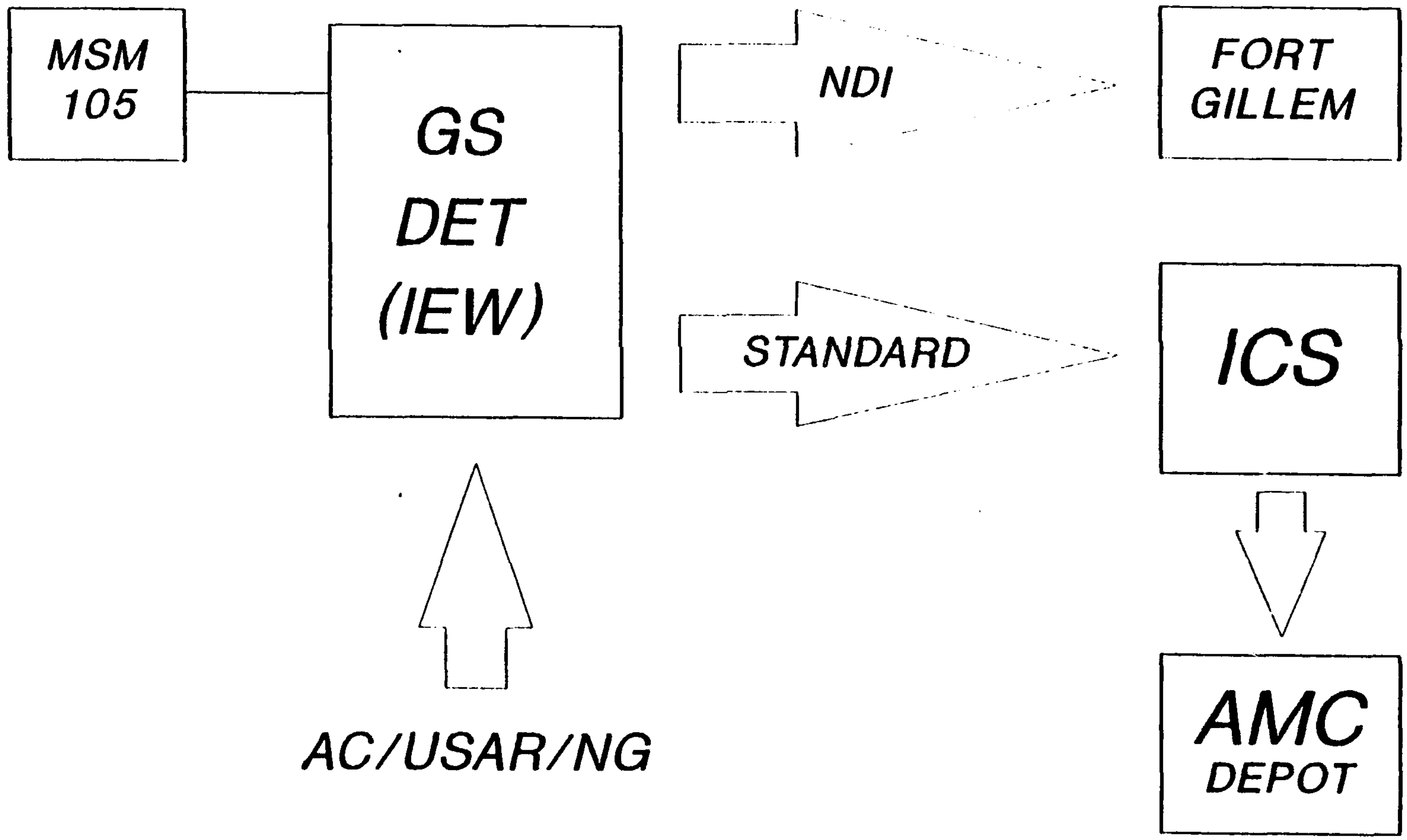
ALIGNS DIAGNOSTICS AND REPAIR
SAVES 288 SPACES

IEW SYSTEMS


FUTURE
DIV AC
FORT GILLEM
SSA
UNIT
UNIT
NDI
WO
COMSEC/IEW/ATE
PLT
MI
ATE
USAR-RTS-I
LAISION
ICS
CONTRACTOR
USAR
WO
SSA/DOL
AMSA/
ECS/
UNIT
DEPOT
STD SYS
NG
USPFO/SSA
UNIT
UNIT
USAIMMC

CURRENT

IEW SYSTEMS



COMBAT DEVELOPMENTS DIRECTORATE

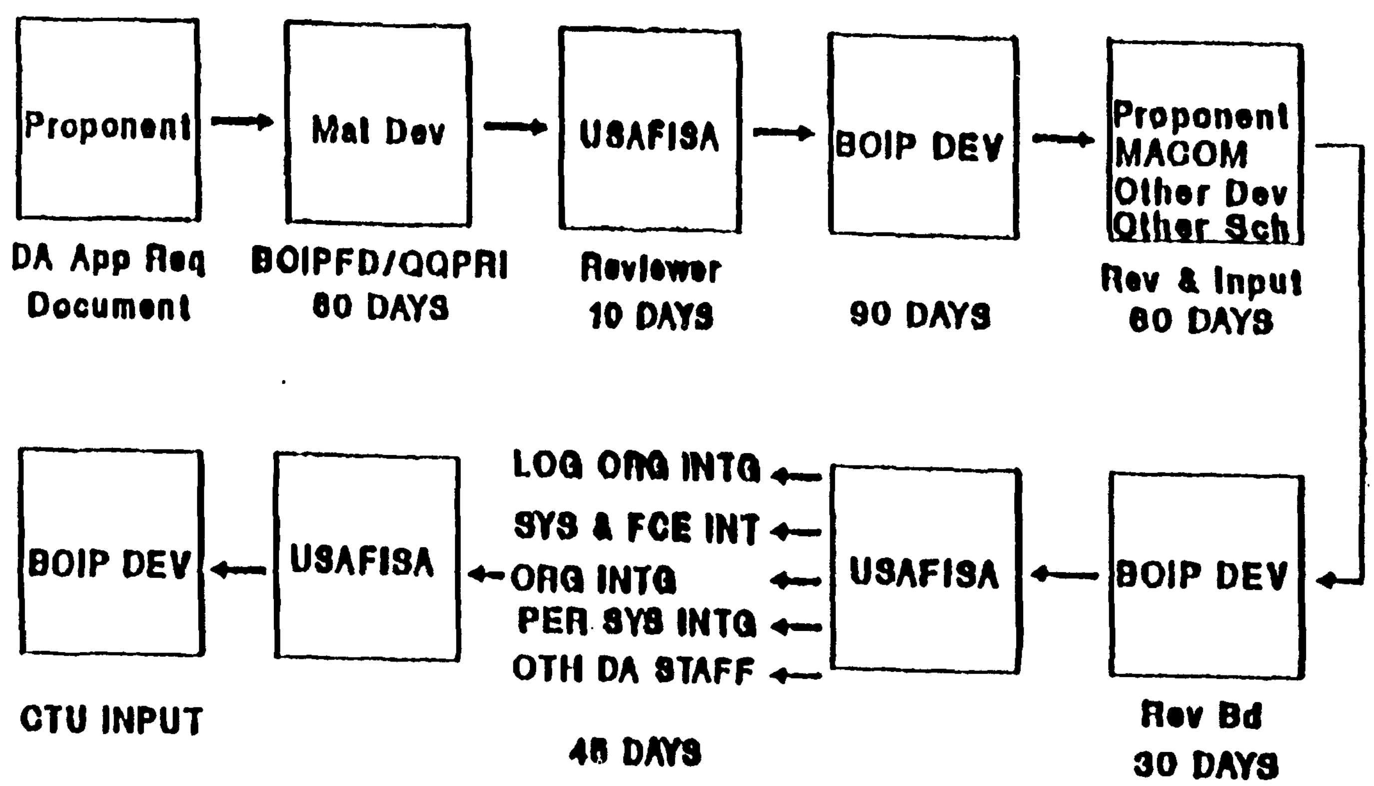
USAIC BOIP PRIORITIZATION

1. GRCS #4
2. IPDS/TRAC
3. ASAS BLOCK 1
4. MITT/THMT
5. GRCS #1 AND #2
6. GBCS-L
7. TROJAN SPIRIT
8. JSTARS GSM
9. KGVA
10. IMETTS
11. CTT H/R, H
12. UAV-SR
13. ADVANCED QUICKFIX
14. JSTARS GSM BLK 11
15. JSTARS GSM BLK 11A
16. GBCS-H
17. UAV-CR
18. COMMON GRD STATION
19. AERIAL COMMON SENSOR

Enclosure 4.1 to IEW Streamlining Study
IPR Minutes, 29-30 July 92

MASTER PLANS DIVISION
DIRECTORATE OF
COMBAT DEVELOPMENTS

BOIP PROCESS



Non-Standard Logistics Support

9 June 1992

Enclosure 5 to IEW Streamlining Study Group
IPR Minutes, 29-30 July 92

Assumptions

- Wholesale Stock Fund (WSF) Must Recoup Costs
- Owner of Item Pays for Repair
  - Unit Pays WSF for Depot-Level Repairs
  - WSF Must "Own" the Item (Thru Receipt/Issue)
- Must Support Fielded Systems
- Flexible Approach to Current Systems
- Long-Term Goal: Manage the Materiel Development Process

Types of Non-Standard Systems

Non Standard Logistics Support

- Off-The-Shelf Commercial Items
- Contractor Logistics Support (Repair and Return)
- Low-Density / Single-User Items
- Items Not Requisitioned / Billed Thru Standard Log/Financial Systems
- Contractor Support, But Standard / Look-Alike Documentation

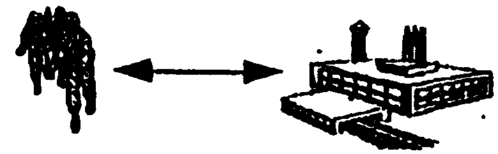
Why Standardize

- Non-Standard Systems
  - Impair Visibility of Asset Position
  - Impair Visibility of True System Cost
  - Complex Unit Turn-In / Repair Process
  - Reduce Incentive for Unit Diagnosis / Repair
  - Make Wartime Support Contractor-Dependent
- DBOF Policy
  - "Buying User Pays Less"
  - Incentives to Turn-In Excess Stock
  - Incentives to Reduce Inventory

Alternatives to Standard System

(While Contractor Log Support (CLS) Remains)

Non Standard Logistics Support



Bring Documentation in Line With Standard System (Example: MSE)

Charge Standard Repair Price (for Repair and Returns)

- Average Repair Cost for Item
- Contract Admin Cost At WSF
- Washout Rate
- Transportation Cost (To and From)
- Other?
- Note: Systems Must Distinguish
  - Repair (Standard Repair Price)
  - Purchase (Standard Price for Item)

Non-Standard Reimbursement to WSF

Criteria for Exemption

Non Standard Logistics Support

- Low-Density / Single-User
- Short Life Expectancy Before Replacement
- High Cost of Type Classification
- No (Or Minimal) Incentive for Efficiencies in System by Bringing Under Stock Fund

Recommendations

Non Standard Logistics Support

- Task NICPs to Report All Non-Standard Systems
  - Include AMC OMA-Funded (P7M) Repair Programs
  - Include PM-Funded Systems Not Yet Standard
- PM or NICP Provide Target Date For
  - Transition to Standard Logistics System
  - Look-Alike Standard Documentation (Issue/Turn-In)
- Or Justify Request Exemptions From Standard Sys
- HQDA Develop Review Process to Review Exemptions
  - LOG, OPS, SARDA
  - Affected MACOM (For Single-User Systems)
- Goal: Manage the Materiel Development Process

ACQUISITION SUSTAINMENT RELATIONS

PAST

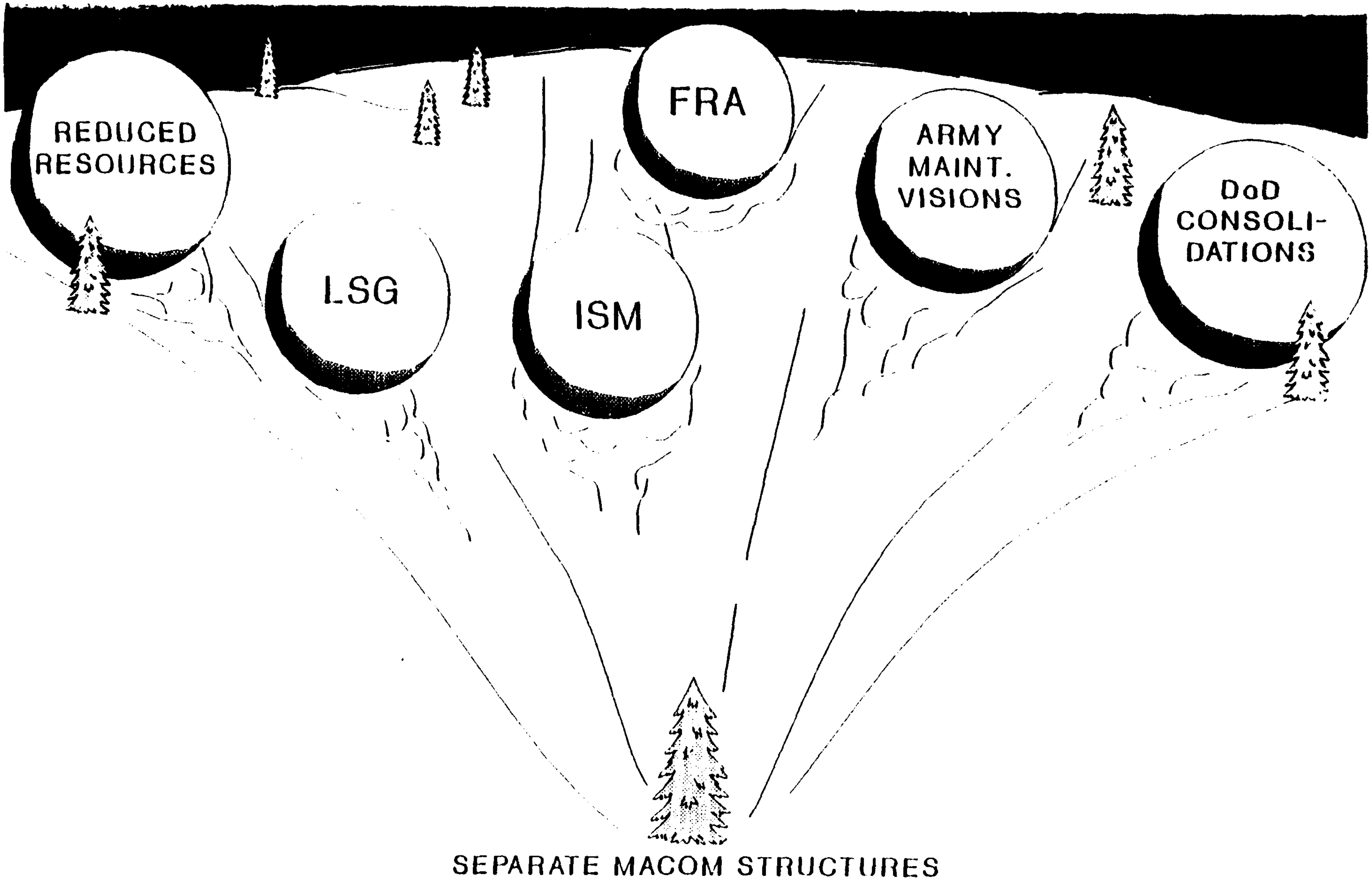
- 15-20 YR MATERIEL LIFE CYCLE
- LEVEL III TECH DATA PACKAGE
- DEVELOPMENTAL HOW ORIENTED
- MULTIPLE SYSTEMS
- SYSTEM OPERATIONAL INDEPENDENCE (W/ MANUAL - OFF LINE LINKAGE)
- REPAIR SKILLS/CAPABILITY
  - PIECE PART LEVEL
  - STD ORGANIC STRUCTURE
  - SEMI-STABLE DESIGN
  - COMMON TMDE/EMERGING ATE
  - EMERGING BIT/BITE
  - SYSTEM DRIVEN TRAINING NEEDS
- FWD DEPLOYED/HEAVY FORCE
- LITTLE TO NO RESERVE IEW
- STABLE RESOURCING
- FRONT END FUNDING

CURRENT STATE

FUTURE

- REDUCED LIFECYCLE (18 MOS - ?)
- LEVEL I OR II TDP (FORM, FIT, FUNCTION DRIVEN)
- NDI/COTS/OPEN ARCHITECTURE
  - SW VS FIRMWARE DRIVEN
  - RAPID PROTOTYPING
  - INCREASED USER TESTING
- FEWER SYSTEMS WITH INCREASED CAPABILITY
- AUTOMATED SYSTEM INTEROPERABILITY
- REPAIR SKILLS/CAPABILITY
  - BOX/MODULE INTENSIVE
  - CONTRACT RELIANCE
  - STATE OF ART TMDE/ATE
  - ENHANCED BIT/BITE (SYSTEM TO COMPONENT)
  - TECHNOLOGY DRIVEN TRAINING NEEDS
  - STRONG SYSTEM LEVEL KNOWLEDGE
  - HDW/SW KNOWLEDGE REQUIRED
- CONUS BASED/RAPID PWR PROJECTION
- RESERVE IEW BUILD
- VOLATILE RESOURCES
- USER FUNDING

TRANSITIONAL



CONSOLIDATED SUPPORT WITH AMC FOCUS

92210-01

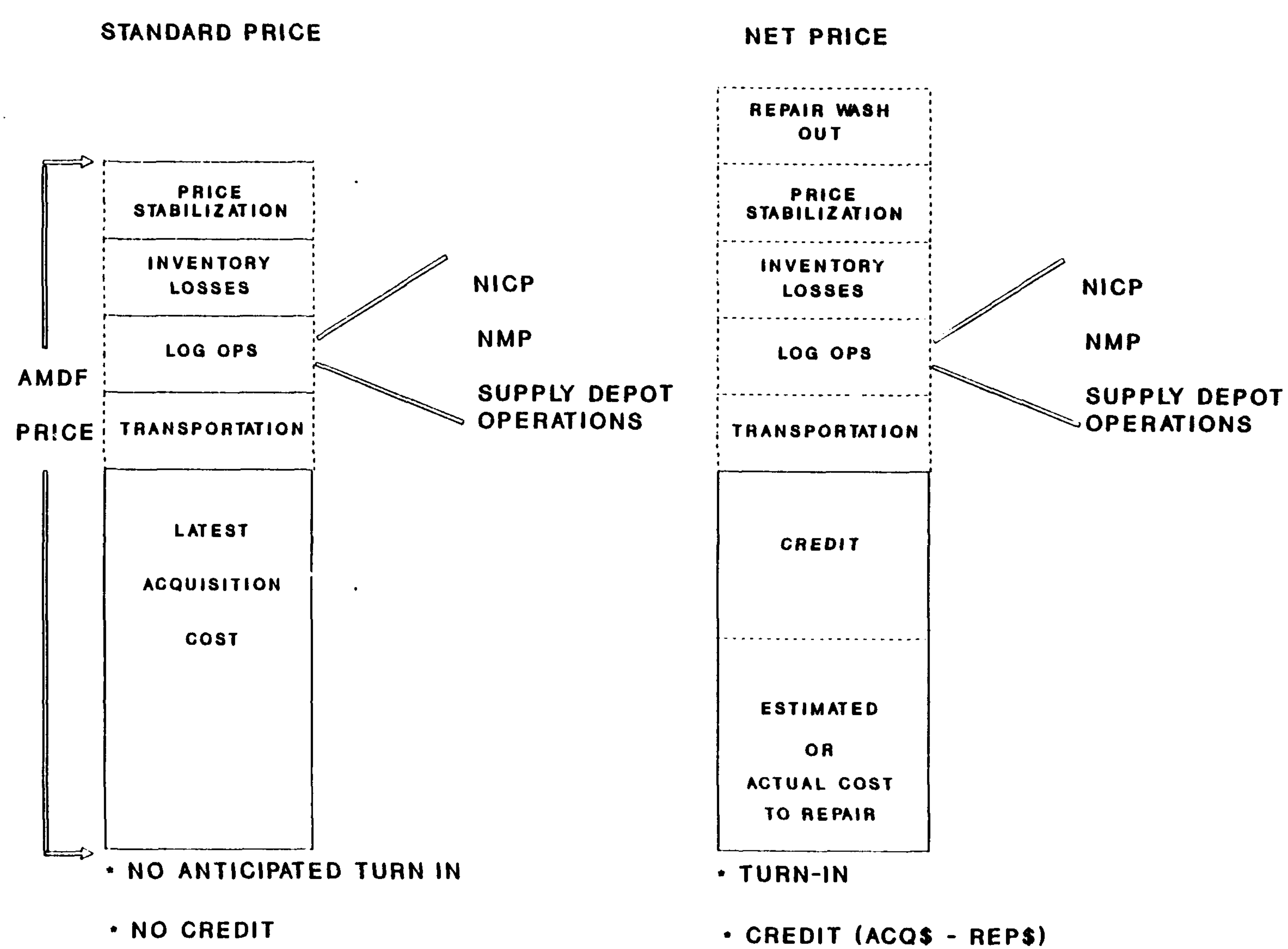
WHY "X"RA?

- NOT AR AUTHORIZED SRA
- NOT DEPLOYED FRA (AMC CONCEPT)
- IS "SOME KIND OF" REPAIR ACTIVITY FWD

BOTTOM LINE: REALLY DON'T CARE AT THIS POINT

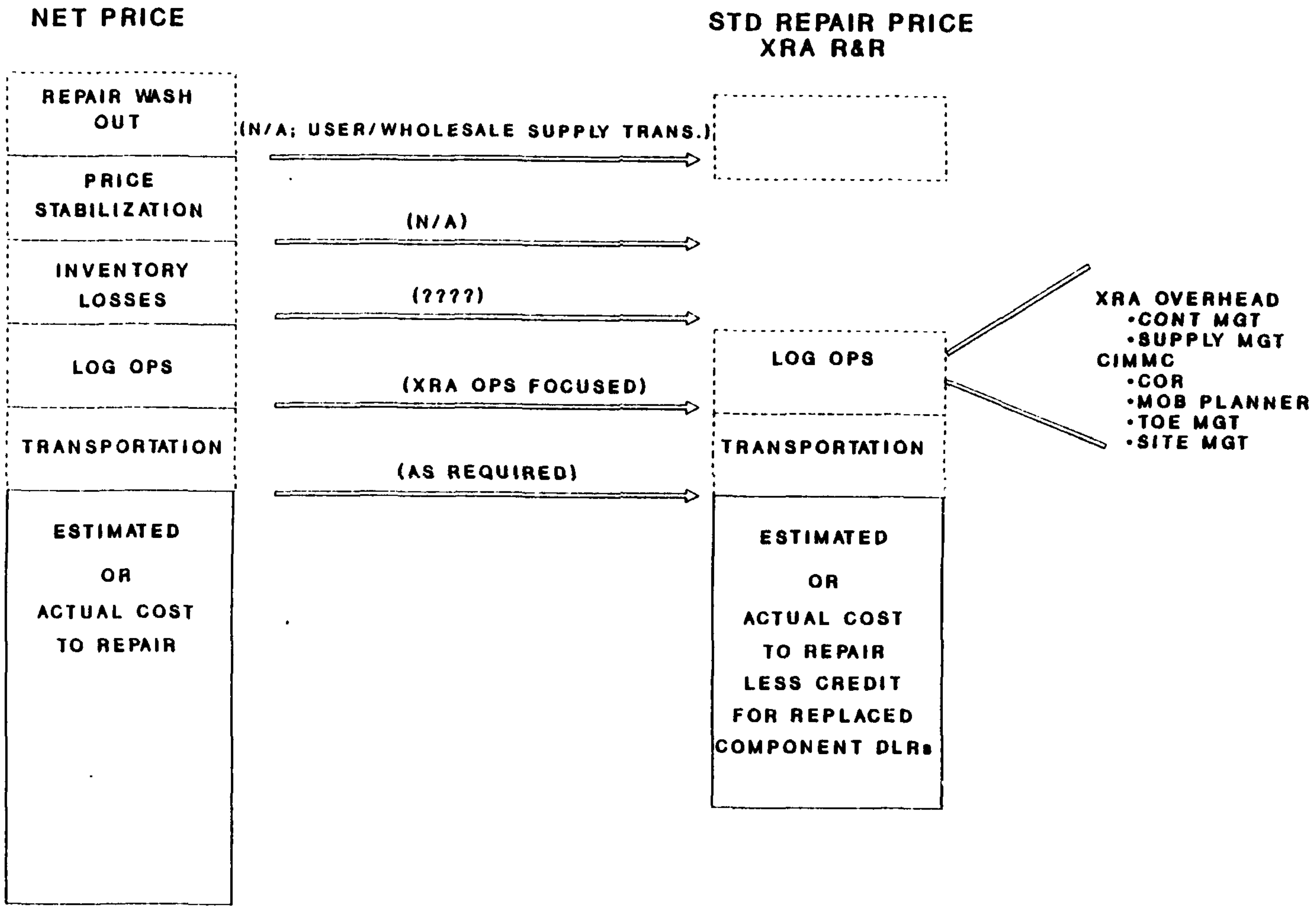
92210-02

ASF/DLR



ASFDLR

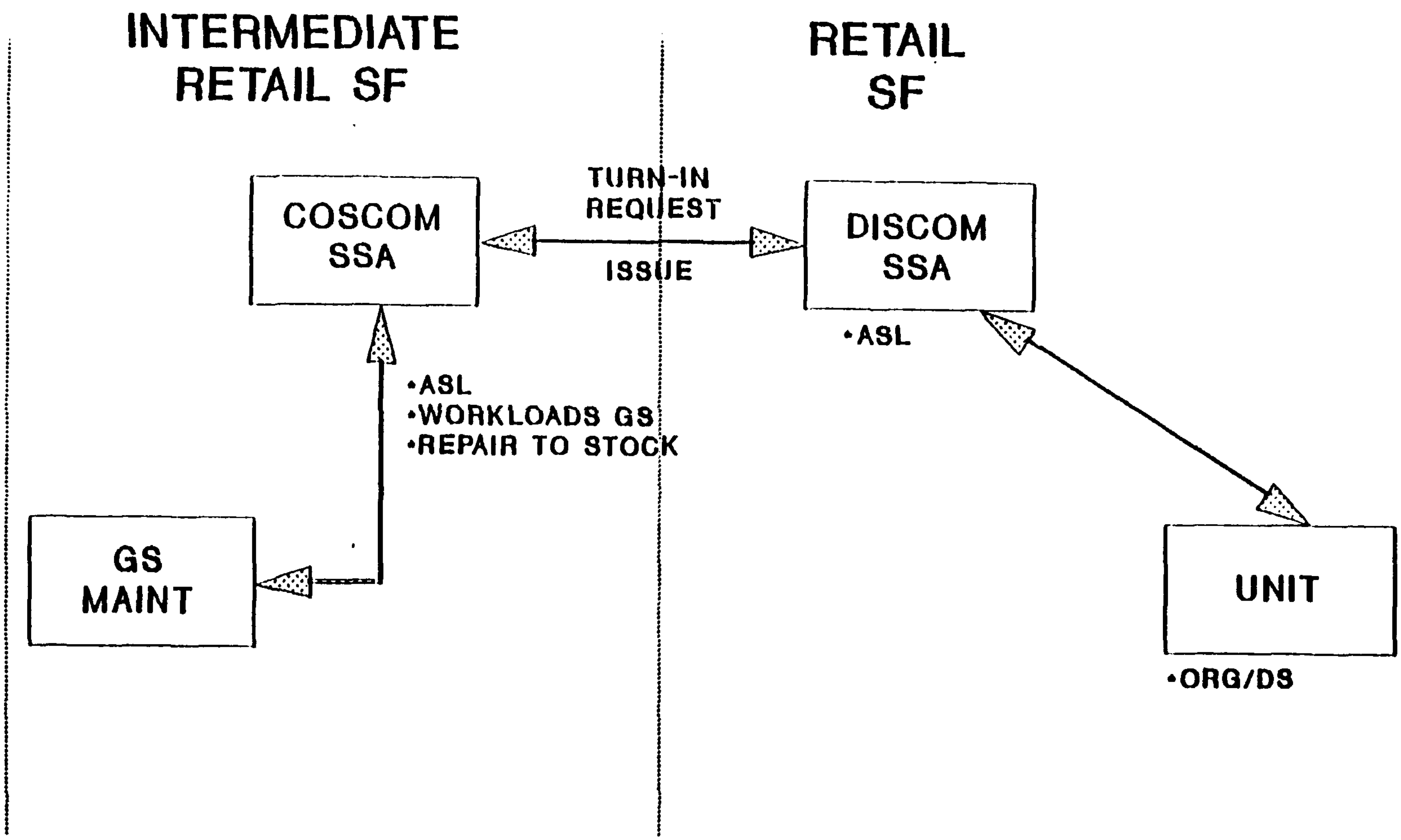
FORWARD REPAIR FACTORS



- TURN-IN
- CREDIT (ACQ$ - REP$)

FORREFA

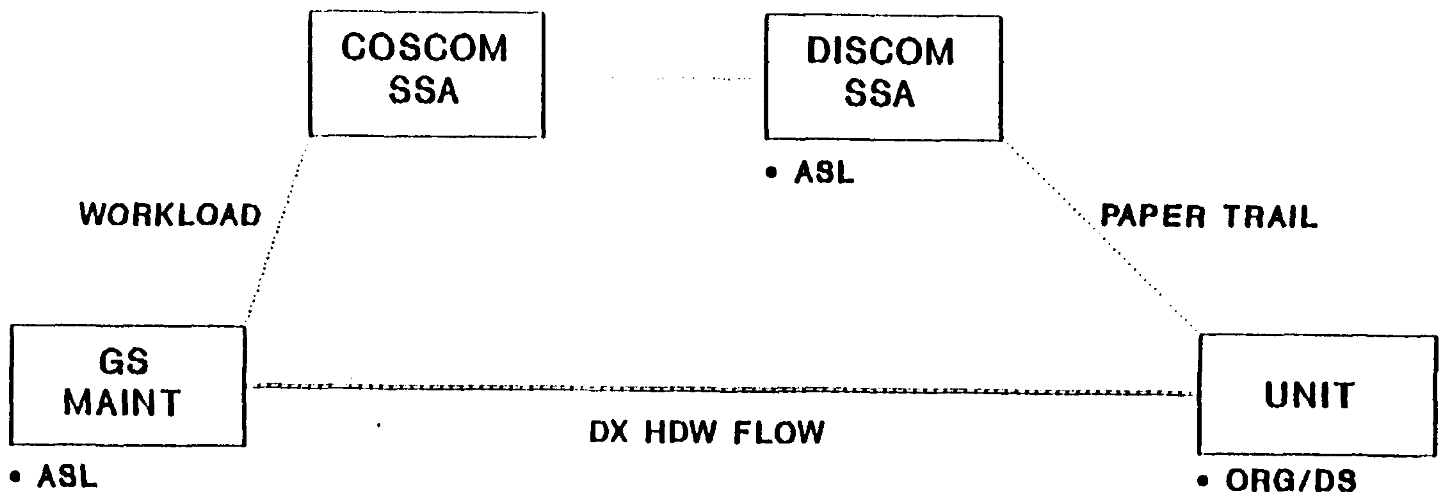
UNIT FOCUS



STD ARMY FLOW

CONCEPT7

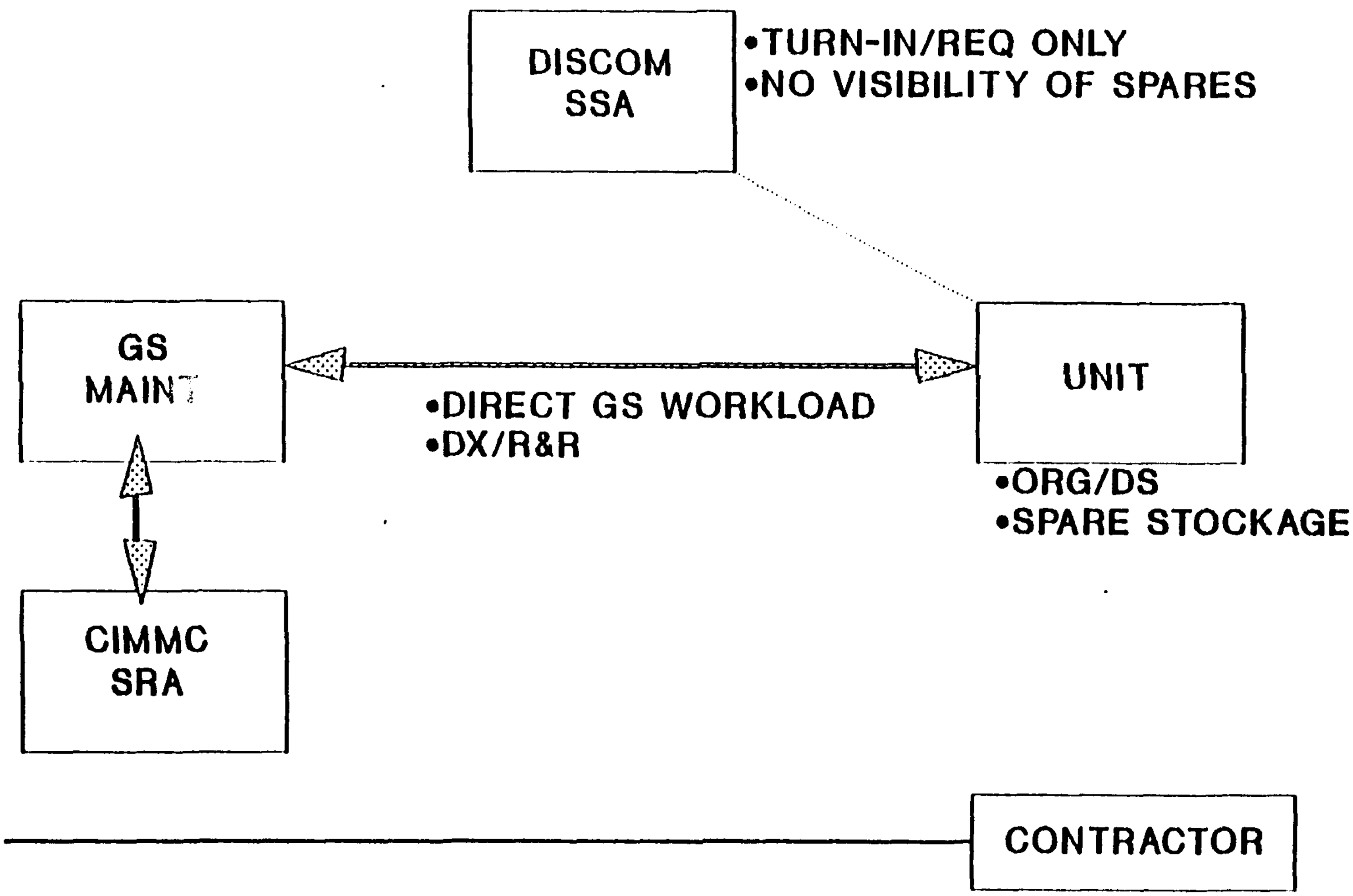
UNIT FOCUS



FM 34-1 FLOW

CONCEPT8

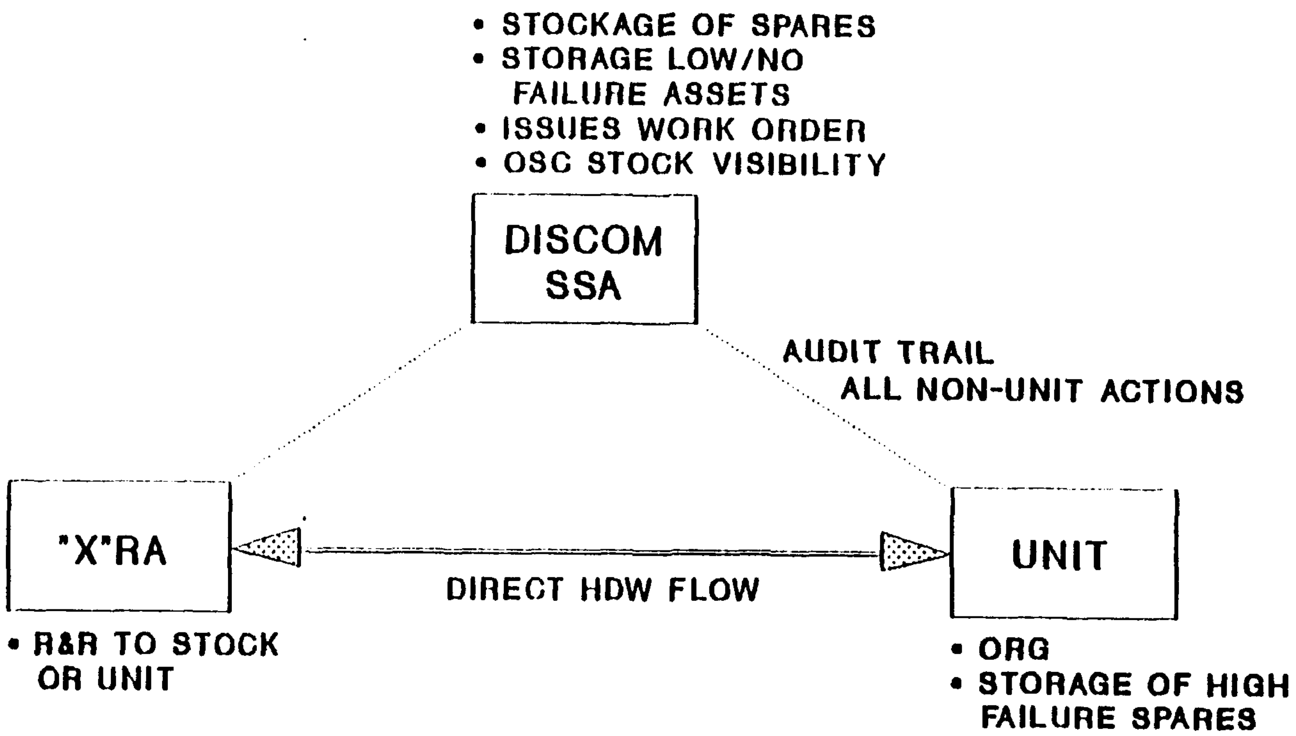
UNIT FOCUS



ACTUAL FLOW

CONCEPT8

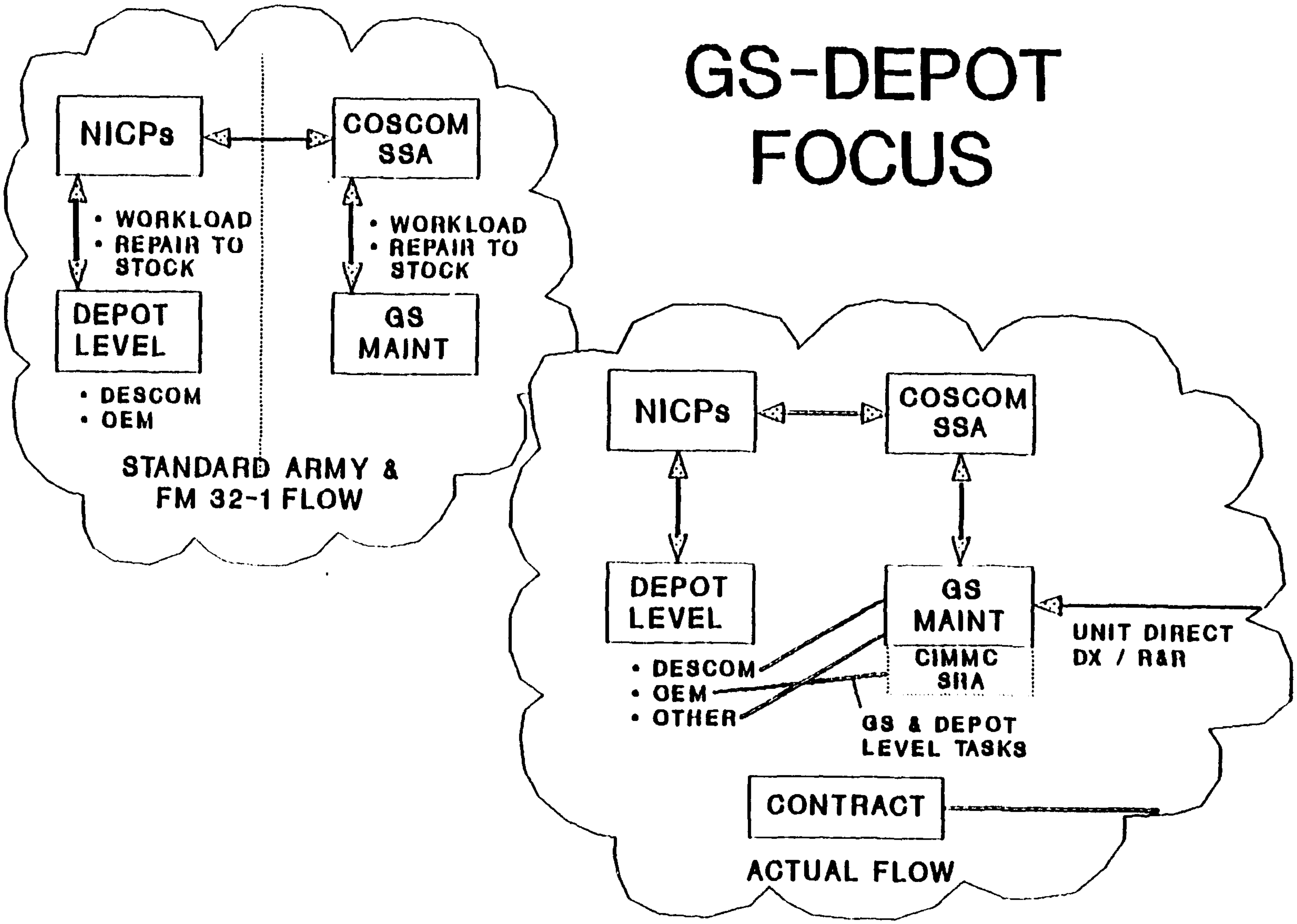
UNIT FOCUS



CONCEPT9

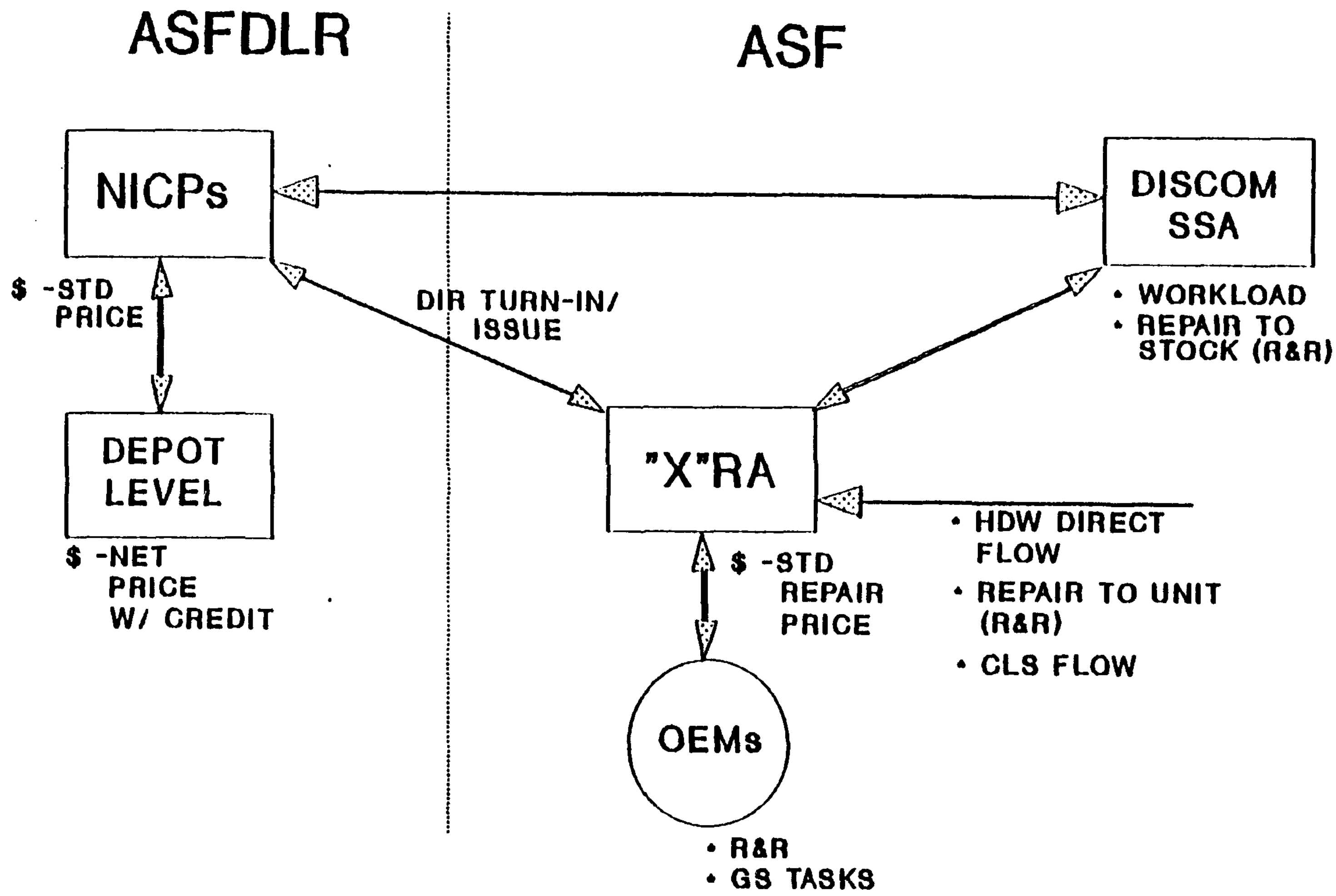
RECOMMENDED FLOW

GS-DEPOT FOCUS



CONCEPTS

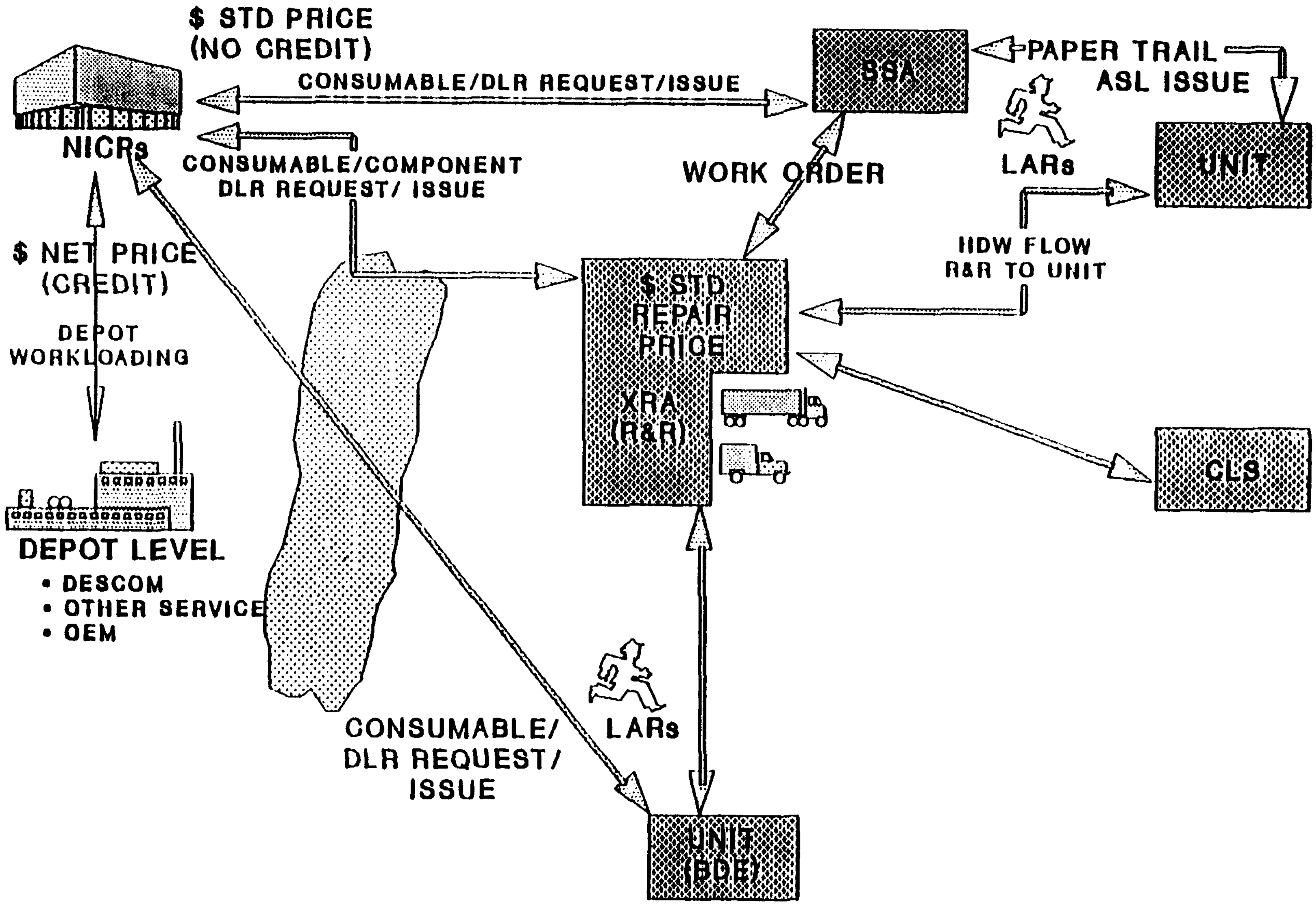
GS-DEPOT FOCUS

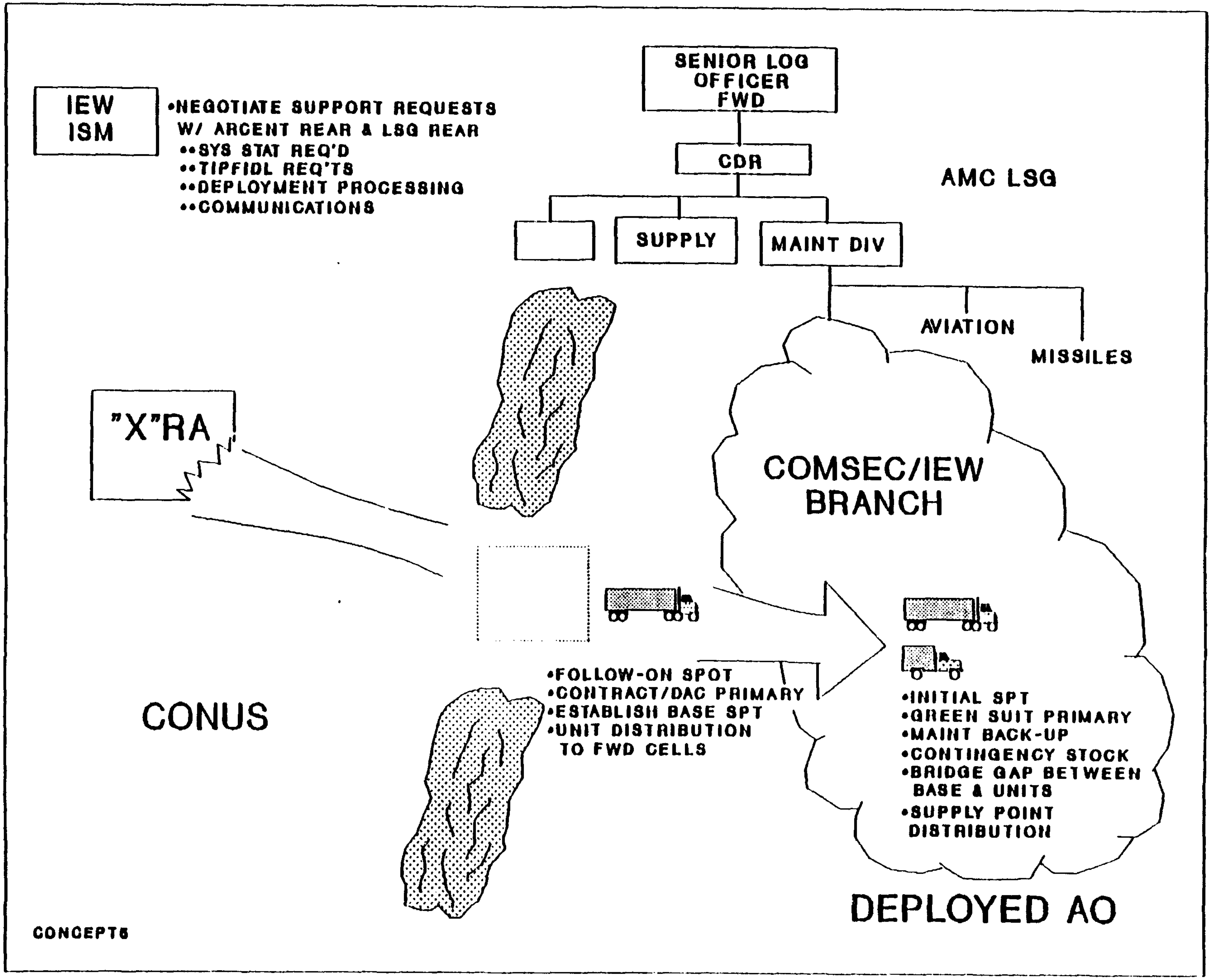


RECOMMENDED FLOW

CONCEPT4

IEW REPAIR ACTIVITY SUPPORT

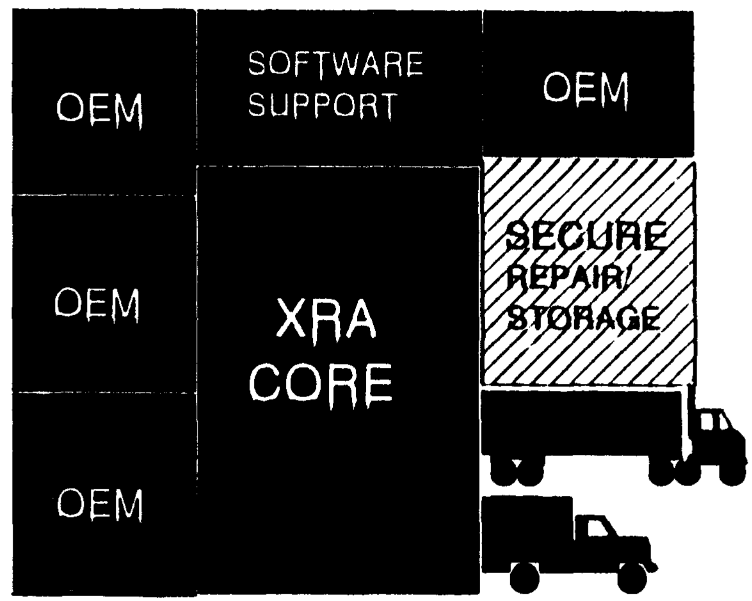



IEW
ISM
•NEGOTIATE SUPPORT REQUESTS
W/ ARCENT REAR & LSG REAR
••SYS STAT REQ'D
••TIPFIDL REQ'TS
••DEPLOYMENT PROCESSING
••COMMUNICATIONS
SENIOR LOG
OFFICER
FWD
CDR
AMC LSG
SUPPLY
MAINT DIV
AVIATION
MISSILES
"X"RA
COMSEC/IEW
BRANCH
•FOLLOW-ON SPOT
•CONTRACT/DAC PRIMARY
•ESTABLISH BASE SPT
•UNIT DISTRIBUTION
TO FWD CELLS
CONUS
•INITIAL SPT
•GREEN SUIT PRIMARY
•MAINT BACK-UP
•CONTINGENCY STOCK
•BRIDGE GAP BETWEEN
BASE & UNITS
•SUPPLY POINT
DISTRIBUTION
DEPLOYED AO
CONCEPT6

IEW XRA

CHARACTERISTICS

* AREA BASED FORWARD SUPPORT
* SEMI-MOBILE FACILITIES
* TAILORED GENERIC CORE BASE
* FLEXIBLE TO GROWTH
  - OEM TECHs
  - SYS SOFTWARE TECHs
  - SECURE WORK ENVIRONMENT



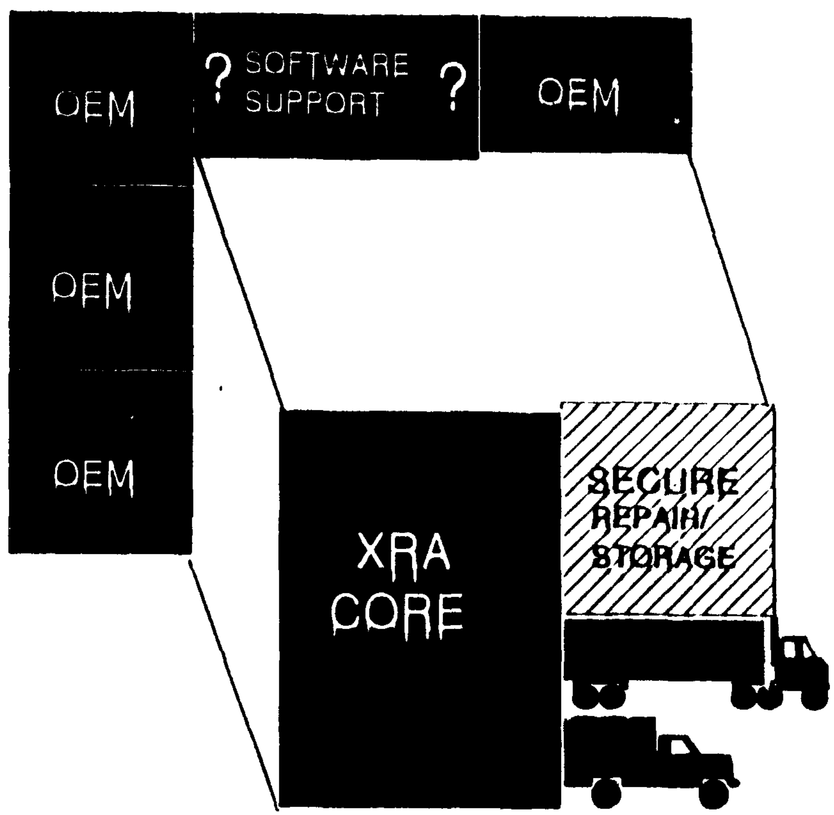
IEWSRA.DRW

XRA BASE COMPOSITION

<u>XRA CORE</u>

PERSONNEL -
- MILITARY (GS DET)
- DEPOT
- OMNIBUS CONTRACTOR
- LOGISTIC ASST. REPs

CAPABILITIES -
- MAINTENANCE
- SUPPLY MGT
- TRANSPORTATION
- CUSTOMER ASST
- SITE MGT



SELIM-IEW

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: IEW Streamlining Study: Outline of Proposed Future Support.

1. Reference:

a. Message HQ DA SACS-2B, PO12 000Z Nov 91, Subject: Intelligence and Electronic Warfare (IEW) Sustainment.

b. MACOM IPR, FORSCOM, Ft. McPherson, GA, 23-24 Jun 92.

2. As discussed at the conclusion of the last MACOM IPR, the multiple "stovepipe" sustainment mechanisms are largely due to the following:

a. PM's (AMC and non-AMC) managing sustainment of fielded systems.

b. MACOMS managing support for "MACOM unique" systems.

3. The objective of this study is to integrate and streamline these "stovepipe" support arrangements. True integration of efforts will require the centralized management and control of all sustainment for fielded systems (unit/PM/MACOM owned assets) by a single organization. Formal transition from developer to readiness would not be a factor. The current proposal for sustained maintenance (above BN level) would place this responsibility with AMC, specifically USACIMMC, as the single Army Intelligence and Electronic Warfare (IEW) executive agent for logistics.

a. Depot Forward Expandable Repair. The general concept of support is similar to the Strategic Logistics Agency (SLA) concept for Integrated Sustainment Maintenance. The major difference between the two efforts reside in the management. structure and composition being focused on the Intelligence functional area as opposed to multi-commodity orientation. The following details are provided:

1) The Director. CIMMC. would serve as the Army Integrated Sustainment Maintenance Manager (ISMM) for integration of all PM. MACOM and user IEW sustainment requirements.

2) Maintenance.

a) An expandable repair activity (XRA) would be established to provide dedicated centralized Corps regional support for all tasks above the BN/BDE organic capability.

Classically this would be equated to GS and above level of maintenance.

b) The core nucleus of the XRA would include a competitive omnibus contract base, DA civilians (depot, msc, etc.) and current/future GS maintenance detachments.

c) The XRA omnibus contractor will establish contractual repair linkage with OEM's as necessary to expedite OEM depot repair activities.

d) Where necessary, OEM technicians would be physically integrated into the appropriate XRA for dedicated system technical support with supply support assistance and ACOR site management provided by the core element of the XRA.

e) Each corps XRA would be responsible for centralized management of contract/depot support needs at the unit level (BN/BDE).

f) The primary mission of the XRA omnibus contract staff will be in support of technology transfer and skill sustainment. While this contract staff will be an integral element of the day-to-day repair function, the thrust will be to create an environment which reduces dependency on an OEM tech base and provides continuous on the job skill enhancement to the deployable soldier base.

g) The XRA will have a tailorable deployment mission in support of customer operational needs. The soldier base will serve as the primary initial deployment force with follow-on support from the civilian base as necessary.

h) Forward level maintenance (XRA) will be accomplished under a cost to repair basis with reduced surcharge. Depot level repair (OEM and DESCOM Depot) will be accomplished within the ASFDLR guidelines/framework established.

i) The XRA would serve as forward central point for receipt of designated OEM depot level repairable from DISCOM and send directly back to OEM as directed by Commodity Command Item Manager. An example would be in support of Ground Base Common Sensor (GBCS) where failed module would be diagnosed at organization level, replaced with spare maintained with system and coded for depot level repair. Defective module would be turned-in with requisition to DISCOM SSA, funded requisition would be passed to Commodity Command and defective hardware shipped to XRA.

3) <u>Supply.</u>

XRA SUPPLY SUPPORT OPTIONS

AT "XRA"	DODAAC/UIC	GOV'T	CONT/SOLDIER	STOCKAGE	AUTOMATION	DEPLOYMENT
SSA Authority thru mission statement of TDA/MTOE	RETAIL • With wholesale req authority • Separate TDA? (all XRAs)	Responsible & accountable officer (1 CIL)	All other functions (4 people: 2-repair parts, 2-spares)	• Spares • Mission repair • All classes less medical (req) • Mixes supply & maintenance in "XRA"	SARSS/DS4	• Contingency stock • Repair parts
MSSA Authority thru AMC	RETAIL • With wholesale req authority • Separate TDA? (all XRAs)	• Responsible officer @ MSSA • Accountable officer @ MSSA (1 CIL)	All other functions (2 people: repair parts)	• No spares ** • Mission repair parts • Classes II., VII., IX. (req) • Focuses "XRA" as maintenance	SAMS	• Contingency stock pushed from wholesale • Repair parts
MSRA Authority thru AMC	RETAIL • Ext MSSA at CIMMC • Req thru CIMMC • Extension of CIMMC TDA	• Dir. CIMMC is responsible officer • Accountable officer @ MSRA (1 CIL)	All other functions (2 people: repair parts)	• No spares ** • Mission repair parts • Classes II., VII., IX. (req) • Focuses "XRA" as maintenance • With CIMMC support for all classes less medical	SAMS-TDA	• Contingency stock pushed from wholesale • Repair parts

** Consider FWD storage of wholesale/PM assets (custodial accountability)

b. Organizational Level.

1) Maintenance/Supply. Under the current concept, the IEW BN/BDE level maintenance capability would be expanded, on a system-by-system basis, to include soldiers skilled to accomplish piece-part (component) diagnostics and repair. Current stockage of spares with the BN would be revisited for movement of low and no demand spares to either ASL within the DISCOM SSA or stockage within the XRA. Defective repairables at the DISCOM SSA resulting from BN turn-in/issue against stocked ASL would be work ordered for repair at cost to the XRA or turned-in and requisitioned from Commodity Command as coded.

2) Logistics/Training Assistance. The CECOM IEW Logistics Assistance Representative (LARs) will continue to be vital linkage between the MI use and the wholesale infrastructure. Their mission in support of maintaining unit readiness and preparedness for war/contingency operations will require continued expertise of the overall supply and maintenance relationships. As future systems become more diverse, represent variations of complexity and commonality (i.e. IEWCS in to Trackwolf) the LAR will be required to provide a bigger technical role to the using units. As such, the LAR must maintain a thorough comprehension of the IEW System of Systems, receive IRP system training and function as the primary source of continuity at the unit level. This continuity is key to supporting the unit level sustainment and enhancement of skills for the entry level soldier as well as the seasoned soldier who has different systems in previous assignments.

4. Goals.

a. Short term (FY93).

1) Conduct test in conjunction with Single Stock Fund (SSF), and Integrated Sustainment Maintenance (ISM) test at Ft. Hood, Jan-Feb 1993. This would test the integration of the CIMMC Omnibus contractor and the 159th MI GS DET under the single operational control of AMC (CIMMC). The effectiveness of this test will be evaluated from two distinct perspectives as follows:

a) Stand alone from SSF and ISM by the Streamlining Team and BN/BDE Cdr's.

b) Compatibility with the overall SSF and ISM test.

2) Realign and integrate existing PM/MACOM contract sustainment processes into the existing CIMMC SRAs. On a case by case basis, realignment may be accomplished through increasing the role of the Omnibus contractor. In other cases existing PM/MACOM contract arrangements may simply be modified to reflect a common ACOR until additional contract arrangements can be accomplished as appropriate. As dictated by the course of action taken, CEL positions and funding resources would be realigned to continue the appropriate level of management.

3) Develop planning for FY94 expansion world-wide pending successful outcome

of Ft. Hood test.

b. Long term.

1) Transition of GS IEW/COMSEC Repair Platoons to AMC (CIMMC) and formalization of the IEW/COMSEC "XRA."

2) Total integration of the fielded system sustainment mission for all PM/MACOM/USER owned assets through the CIMMC IEW ISMM.

5. Please provide formal response of concurrence/non-concurrence with comment. Non-concurrences require complete rationale suitable to support a General Officer Review and decision process. Ensure responses clearly annotate situations where single management will and will not work as appropriate. Comments which support concurrence are strongly encouraged.

6. Your formal response is required at the 28-30 July MACOM working IPR at USACIMMC, Vint Hill Farms Station, Warrenton, VA.

7. Point of Contact is the Study Group Chairman, Mr. Ralph Riddle, USACIMMC, SELIM-IEW, DSN 229-5047.

8. CECOM Bottom Line: THE SOLDIER.

RALPH D. RIDDLE
Chairman, IEW Streamlining
Study Group

IEW STREAMLINING STUDY
GROUP OPTIONS

MACOM IPR- 30 July, 1992

IEW STREAMLINING STUDY GROUP OPTION 1

STATUS QUO-

It was determined by the Study Group that the charter of the Streamlining Study dictated a change to a structure which was more effective, efficient and responsive to the IEW maintenance requirements while maximizing resources than that which exists at present. Option one was deemed unfeasible, non-functional and prohibitively expensive.

IEW STREAMLINING STUDY
GROUP OPTION 2

MACOM FOCUSED

GS- Management "Green Suit"

FRA- AMC Integrated at forward base
-- Move NDI under one roof
-- Move PM under one management

PROS	**CONS**
-MACOM controls GS repair	- GS manpower utilization (does not meet DA goal)
-No tactical doctrine change (complies with 750-1)	- Separate command relationships for elements
-Less redundancy among support structure	- Potential inconsistencies in operations between MACOMs
-Centralizes resources (ie; contractor)	- Not in line with long range sustainment planning/objs
-Flexibility	
-Maintains R and R through contractors	- Increased pass back potential
-Integration of military and civilian resources	- Emphasis on tactical training versus MOS training
-Qualitative cost avoidance	- Contractor element is non-deployable
-Step toward seamless logistics	- Documentation required for GS self sustainment

IEW STREAMLINING STUDY
GROUP OPTION 3

XRA

- AMC integrated at forward base
  - Move NDI under one roof
  - Eliminate PM/separate MACOM sustainment
  - Incorporate GS Platoon

PROS

-Better capture of demands within system

-Single command and control of repair resources

-Better visibility for prioritization

-Standardize operations across MACOMS

-Improve MOS training focus with reduced external distractors

-Less redundancy among MACOM support structures

-Streamlines user support focus

-Centralizes resources (ie; contractor)

-Flexibility for materiel development
  - Acquisition logistics cost avoidance

-Maintains repair and return for user (regional cost)

-Enhanced integration of military /civilian resources.

-Qualitative cost avoidance

-Achieve DA goal of "seamless" logistics

-Single deploying organization

CONS

- MACOM does not own sustainment maintenance

- Will require documentation (tactical) change

- Negative contractor element deployment

- Priority subject (to some degree) to funds (will require MACOM input)

Appendix AV

CIMMC Memo, 21 Sep 92, Subject: IEW Streamlining Study - MACOM IPR Minutes, 1 Sept 92

DEPARTMENT OF THE ARMY
U.S. ARMY CECOM INTELLIGENCE MATERIEL MANAGEMENT CENTER
VINT HILL FARMS STATION
WARRENTON, VIRGINIA

REPLY TO
ATTENTION OF

22186-5077

SELIM-IEW (700)

21 SEP 1992

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: IEW Streamlining Study - MACOM IPR Minutes, 1 Sept 92

1. Draft minutes and enclosures are herein provided for subject MACOM IPR. Recommended changes must be submitted in writing NLT 9 Oct 92. "No comment" will be considered concurrence and minutes will be finalized accordingly.

2. POC is the undersigned, SELIM-IEW, DSN: 229-5248/5254.

3. CECOM Bottom Line: THE SOLDIER.

Dennis F. Dutton

Encl
as

DENNIS F. DUTTON
Project Officer, IEW
Sustainment Study

DISTRIBUTION:

Commander, FORSCOM, ATTN: FCJ4-SM (Mr. Serrentino)
Commander, INSCOM, ATTN: IALOG-R (Mr. Demy)
Commander, USAICS, ATTN: ATSI-CDG (Mr. Lovely)
Commander, USASOC, ATTN: AOLO-P (Mr. Richardson)
PEO-IEW, ATTN: SFAE-IEW-SE (Mr. Hume)
Director, CIMMC, ATTN: SELIM-IEW (Mr. Riddle)

cf:
HQDA, DCSLOG, ATTN: DALO-SMC (Mr. Demchak)
HQDA, DCSINT, ATTN: DAMI-PII-I (MAJ Maguire)
HQDA, DCSOPS, ATTN: DAMO-FDI (MAJ Andrew)
HQ Army Materiel Command, ATTN: AMCLG-SI (Mr. Shelton)
Commander, CECOM, ATTN: AMSEL-LC
Commander, CECOM, ATTN: AMSEL-LC-LM-EN (Mr. Mabray)
Commander, CECOM, ATTN: AMSEL-LC-SM-S2 (Mr. Travisano)
Director, CIMMC, ATTN: SELIM-DIR
Director, CIMMC, ATTN: SELIM-T

SELIM-IEW

MEMORANDUM FOR RECORD

SUBJECT: IEW Streamlining - Minutes of MACOM IPR, 1 Sep 92

1. This memorandum furnishes subject minutes for information, documentation, and necessary action.

2. The agenda and a copy of the attendee list are provided as Enclosures 1 and 2, respectively.

3. Minutes herein reflect general administrative information, detailed discussions, and current taskings.

4. **General Administrative Information**

a. The IPR was conducted at CIMMC, Vint Hill Farms Station, VA, from 0800 to 1700, 1 Sep 92.

b. This IPR was conducted primarily in briefing or discussion format to provide the study group principals and their Irepresentatives with an update on the progress and direction of the study.

c. Mr. Dutton provided copies of the draft 29-30 July IPR minutes and the final 23-24 June IPR minutes, as well as, Intelligence and Electronic Warfare (IEW) Streamlining Project, Volume I: Sustainment Analysis Report (which supersedes the Initial Analysis Report, dated July 17, 1992) and Volume II: Directives and Related Study Documents, both dated September 1, 1992.

d. A MACOM Seniors IPR was announced for 13:30, 21 Sep 92, at Vint Hill Farms Station. Mr. Dutton asked for input from the study principals as to whether the IPR was needed, what issues needed to be addressed, and who should attend.

e. A General Officer Review was announced for mid-October (week of 12 Oct) hosted by Mr. Demchak (HQDA, DCSLOG). Mr. Dutton solicited attendance information from the study principals.

5. **Detailed Discussion**

a. **Technology Assessment Presentation.** Mr. DelVecchio of the CECOM Signals Warfare Directorate, introduced a two-part presentation of "Technology Perspective Issues of Sustainability and Supportability." Mr. Roger Campbell presented the current technology base and Mr. Bob Summer addressed future technology. Current sustainment trends and future projections indicate increasing electronics reliability. Furthermore, built-in-tests and diagnostics are expanding to include more components and becoming more accurate. A copy of the presentation slides are provided at Enclosure 3.

b. **Final Study Report.** Volumes I and II of the Final Study report were distributed to the study principals. These documents are still considered to be in draft form. Principals should provide any comments and corrections to the study team at CIMMC as soon as possible. Mr. Dutton requested that previous versions of the draft report be destroyed.

c. **SSF and ISM Demonstration.** Mr. Serrentino reported that the start of SLA's demonstration of the Single Stock Fund and Integrated Sustainment Maintenance at Ft. Hood, TX, has slipped to 1 April 93 and 1 July 93, respectively. The demonstration will include all equipment at Ft. Hood.

d. **Army NSLS Policy.** Mr. Dutton read portions of the draft Army Non-Standard Logistics Systems Policy Letter, which was faxed to CIMMC for comment by SLA. The group discussed how the policy would affect IEW sustainment. A copy of the draft letter is provided as Enclosure 4.

e. **IEW Sustainment Streamlining Final Report Briefing.** Mr. Dutton presented the current version of the final study briefing for review and comments by the IPR attendees. Discussions ensued, with corrections noted (where appropriate), for later revision of the graphics.

(1) Mr. Schelenz asked if the concept had been coordinated with SARDA. Mr. Dutton said he had not talked to SARDA directly, but PEO-IEW has been an active participant in the study.

(2) Mr. Demy commented the concept paper lacked the rationale for selecting the proposed solution. In reference to brief discussions of DS level issues, he also recommended a follow-on effort to relook maintenance definitions and the application of maintenance codes.

(3) Mr. Dutton asked that all MACOMs provide a position as soon as possible, but not later than 14 September. Position papers should identify "holes" (omissions, errors or weaknesses) in the briefing package and concept paper. MACOMs should also identify additional coordination and staffing requirements.

6. **Taskings.**

Number	Action Item	POC	Suspense
I2245-001	Provide input on MACOM Seniors IPR	MACOMs	ASAP
I2245-002	Provide attendance info on General Officer Review	MACOMs	30 Sep 92
I2245-003	Provide corrections to Volumes I and II of Final Study Report	MACOMs	ASAP
I2245-004	Provide position paper on concept for briefing	MACOMs	14 Sep 92

[Insert SELIM-IEW Memorandum dated 20 AUG 1992, SUBJECT: September IPR and IEW Sustainment Plan]

Enclosure 1 to IEW Streamlining Study
IPR Minutes, 1 September 1992

DEPARTMENT OF THE ARMY
U.S. ARMY CECOM INTELLIGENCE MATERIEL MANAGEMENT CENTER
VINT HILL FARMS STATION
WARRENTON, VIRGINIA

REPLY TO
ATTENTION OF

SELIM-IEW

20 AUG 1992

MEMORANDUM FOR See Distribution

SUBJECT: September IPR and IEW Sustainment Concept Plan

1. The purpose of this memorandum is to provide information on the next IPR and the formal IEW Sustainment Concept Plan.

2. As established during our last IPR, the next MACOM IPR will be held 1 sept 92, 0800 - 1600 hours at Vint Hill Farms Station. The agenda for this IPR follow:

*Welcome and Administrative Information
*Technology Assessment Presentation
*Final Study/Concept Briefing
*Discussion of concept Position Papers
*Release of Study Report and Related Products

3. The draft concept plan previously released and discussed during the IPR has been revised and is provided at enclosure 1. I apologize for the late release as we have reworked this document many times to provide you with a proposed final document drafted at the executive level of detail.

4. Please review the document provided and provide a formal command/organization concept position paper at the Sept IPR for incorporation into the package prior to submittal to the next level. If you have comments to the plan not directly bearing on your concept position please provide under separate cover.

5. Point of contact is the undersigned at DSN 229-5047.

6. CECOM Bottom Line: THE SOLDIER

Ralph D. Riddle

Encl

RALPH D. RIDDLE
Chairman, IEW Sustainment
Study Group

DISTRIBUTION:
Commander, FORSCOM, ATTN: FCJ4-SMM (Mr. Serrentino)
Commander, INSCOM, ATTN: IALOG-R (Mr. Demy)
Commander, USAICS, ATTN: ATSI-CDG (Mr. Lovely)
Commander, USASOC, ATTN: AOLO-MA (Mr. Smith)
PEO-IEW, ATTN: SFAE-IEW-SE (Mr. Hume)

SELIM-IEW
SUBJECT: September IPR and IEW Sustainment concept Plan

cf:
HQDA, DCSLOG, ATTN: DALO-SMC (Mr. Demchak)
HQDA, DCSINT, ATTN: DAMI-PII-I (MAJ Deweese, MAJ Maguire)
HQDA, DCSOPS, ATTN: DAMO-FDI (LTC Riggs, MAJ Andrews)
HQAMC, ATTN: AMCLG-SI (Mr. Shelton)
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Commander, CECOM, ATTN: AMSEL-LC-LM-EN (Mr. Mabray)
Commander, CECOM, ATTN: AMSEL-LC-SM-S2 (Mr. Travisano)
Director, SLA, ATTN: LOSA-SP (MAJ Hills)
Director, CIMMC, ATTN: SELIM-DIR

INTELLIGENCE AND ELECTRONIC WARFARE (IEW)
SUSTAINMENT STREAMLINING

CONCEPT PLAN

20 AUGUST 1992

IEW Sustainment Concept Plan

REFERENCES

A. Letter, CG AMC to VCSA, 20 Aug 91, Subject: Improvement of IEW Sustainment.

B. Letter, CG, INSCOM to HQDA, 28 Oct 91, Subject: Logistics Study for IEW Equipment and NDI.

C. Letter, VCSA to Commander, AMC, 01 Nov 91, Subject: System-by-System Review of Battlefield IEW Sustainment.

D. Vice Chief of Staff, Army Message 012000Z Nov 91, Subject: Intelligence and Electronic Warfare Battlefield Sustainment Study.

E. PEO-IEW, Message 061200Z Apr 92, Subject: Preparation for the New Family of IEW Systems.

F. Commander, AMC Message 221831Z Jul 92, Subject: Logistics Power Projection.

PURPOSE

To synopsize the activity of the Intelligence and Electric Warfare (IEW) Streamlining Study since its inception, highlighting significant findings and ending with a recommendation for future IEW equipment sustainment Army wide.

OVERVIEW

The IEW Streamlining Study was chartered by the Vice Chief of Staff of the Army to analyze the current IEW support structure and make recommendations to improve the sustainment of Army IEW equipment. A key implied task was to identify the changes in doctrine and force structure needed to standardize sustainment of all Army IEW systems into the next century.

BACKGROUND

In November 1991, the Army Vice Chief of Staff chartered a study group under the direction of AMC (Army Materiel Command) to analyze the battlefield sustainment of IEW systems. USACIMMC (United States Army CECOM Intelligence Materiel Management Center) was assigned as the AMC study lead with HQ AMC oversight. Study principals were senior representatives from TRADOC, INSCOM, FORSCOM, SOCOM (USASOC), and PEO-IEW. The Study received HQDA oversight from ODCSOPS, ODCSLOG, and ODCSINT. A synopsis of the study charter is as follows:

> Conduct a system-by-system review of battlefield IEW for all echelons of sustainment.
>
> Letter VCSA 01 Nov 91

> The objective of this analysis is to determine how to integrate and streamline battlefield sustainment of IEW operations on a dynamic and austere airland battlefield, with particular focus on support to key, advanced technology NDI prototype systems.
>
> VCSA HQDA Message 01 Nov 91

Over an eight month period, the Study examined various aspects of IEW equipment sustainment with specific focus on the contrast between current IEW and Army standard doctrine. The Study placed key emphasis on the analysis of current and emerging Army logistics policies and concepts. It also looked at acquisition procedures, technology, training drivers, support needs of the USAR, and conducted a systems level analysis of current and future IEW equipment.

The HQDA General Officer IPR on 28 April 92 confirmed the Study's charter and verified that its direction was in line with the initial VCSA charter.

The Study verified that IEW sustainment has evolved into a series of non-integrated "stovepipe" support arrangements in both peacetime and on the battlefield. This has resulted from a history of intense commodity management through Intelligence and PM (Project Manager) networks as opposed to logistics channels. IEW units have developed heavy reliance on contracts set up in a decentralized fashion by the MACOMS and PMs. This environment has produced confusing lines of support with no visibility of sustainment assets above the MACOM level. The resultant impact has been fractional ownership of Army IEW sustainment policy and the use of non-standard logistics support methods by IEW units.

The Study analyzed logistics policies and concepts pertaining to IEW sustainment. These include the USAOC&S (US Army Ordnance Center and School) draft vision document, and AMC's Logistics Power Projection letter which includes the evolving logistics concepts of Integrated Sustainment Maintenance (ISM), Single Stock Fund (SSF), and Forward Repair Activity (FRA). OSC (Objective Supply Capability), an automation system being developed by the Combined Arms Support Command (CASCOM), was also analyzed with regard to IEW sustainment.

The Study validated "Stovepipe" support of individual systems to be, indeed, a major hinderance to overall management of the Army IEW sustainment system. PMs and separate MACOMs have established unique contract maintenance support structures. This type of non-standard, decentralized sustainment became extremely difficult to manage when MACOMs deployed to an overseas theater of operations such as Operation Desert Storm (ODS).

The Study determined doctrinal changes necessary to allow the Army to harness the rapidly advancing technology of this nation's industrial base. The Army intelligence community will escalate the procurement of off-the-shelf NDI to keep up with state-of-the-art technology and new threats reflective of the changing world order. The Army's ability to maintain long term system design stability will decrease with advancing technology turnover rates and the increasing complexity of technology and component packaging techniques. To keep abreast of these evolving trends, the IEW logistics system must adjust support doctrine to incorporate effective sustainment methods. Given the rate of technology turnover, DOD logisticians will not be able to support Green Suit repair by applying traditional policies and requirements to system documentation and cataloging. Systems will be obsolete by the time traditional sustainment packages are in place. Under current acquisition focus, the Army will not be able train soldier technicians and publish technical manuals fast enough to keep up with the rate of technology turnover. This drives the need for contract and DOD civilian maintenance to be incorporated into Army EAC sustainment doctrine.

Support of high-tech IEW systems lends itself to the two-tiered maintenance system identified by the USAOC&S and SLA as the battlefield sustainment system of the future. The current four-tiered system, with reliance on green-suit maintenance from unit to GS level, is not favorable to the support of the emerging generation of IEW systems. Under the two-tiered concept, IEW equipment would be evacuated from the "field" level of repair directly to the "sustainment level" which would be an EAC repair activity under the command and control of AMC. MSTs (Mobile Support Team) from the EAC repair activity could also be sent forward to perform "sustainment" level repairs at the unit location. This would improve the current system, where Corps have their own GS IEW maintenance activities, through centralized IEW maintenance management at the EAC level. It also provides an advantageous environment for the integration of skilled civilian maintainers (DOD and Contract) with soldier technicians. Such an activity would differ from an SRA as proscribed in AR 750-1 in that it would be a permanent activity to provide blanket support for IEW systems. It would be neither subject to MACOM requested SRA requirements nor restricted to the support of specific requested stock numbered line items.

The IEW Sustainment Study findings favor the establishment of intermediate repair activities at the EAC level on a permanent basis. These activities, under the command and control of AMC, will meet the Army's IEW sustainment needs in both peacetime and war. This structure will establish a centralized focal point for the integration of IEW maintenance through the combination of Green Suit, DOD civilian, and contract maintenance under a single management framework. This type of repair activity will facilitate the streamlining of IEW supply and maintenance efforts.

THE IEW SUSTAINMENT CONCEPT

The objective concept establishes AMC, USACIMMC as the Army Executive Agent for IEW logistics sustainment. This would designate clear single point responsibility within the Army for IEW Logistics Sustainment.

All sustainment contracts and DA civilians will be centralized under the control of AMC. This includes resources supporting developmental, NDI, and CLS systems independent of the level of acquisition management. In addition, centralized support extends to systems fielded for field prototyping analysis. This effects centralized control, at each echelon, of civilian resources including contractor logistics support at the direct support and unit levels.

To leverage emerging logistics processes and provide for increased asset visibility and redistribution (OSC/TAV), **all** ASL spares will be accountable by the supporting SSA. Due to the low density and sporadic demand of these high value assets, IEW spares will require designation for mandatory stockage on the ASL. ASL spares with high failure rates will be maintained at a forward storage location at the MI battalion. SSA accountability will provide asset visibility, capture demand data and budget information, and will insure that all transactions occur within the stock fund process.

Regional support would be provided for IEW equipment distributed throughout the Corps area. The MI GS maintenance detachments, currently assigned to EAC, would be fully integrated with the existing contractor support base collocated with each detachment under the single command and control of AMC. This structure would be expanded to incorporate the aforementioned consolidation of civilian support elements to provide regional support with a Corps focus. The regional facility would provide side-by-side soldier and contractor support for IEW systems. Units with support requirements beyond the ability of the regional facilities would be provided dedicated support for their units.

Dedicated civilian based support as necessary, would be provided to IEW aviation units, MI brigades, unique equipment within the Corps/Theater staff, and unit level equipment under contractor logistics support (CLS). The support would remain under single AMC command and control with adherence to the standard support system as near as possible. This would include the use of standard automation, supply support documentation, and stock funding requirements.

Both the regional and dedicated support would rely on an expanded distribution system fine tuned for support to low density systems. Heavy reliance on state of the art transportation tracking and control technologies will be incorporated to provide heightened visibility for low density, high dollar value spares.

This concept follows closely with evolving doctrine in both SLA and CASCOM under the Integrated Sustainment Maintenance (ISM) concept. Under ISM, sustainment managers will be established at installation, regional, and national levels. Given this infrastructure, the AMC support cells providing dedicated unit level support would be responsive to the installation sustainment manager. The integrated regional EAC support cell would be responsive to the host installation sustainment manager for installation unit requirements and the regional sustainment manager for area based support requirements. At the national level, the Executive Agent for IEW Logistics Sustainment would be directly responsive to the national level sustainment manager for routine and contingency support requirements.

Under contingency operations, deployed sustainment maintenance will be provided by a task organized portion of national and regional cells integrated into the Logistics Support Group structure.

METHODOLOGY

The IEW Sustainment Study Group continues their efforts to refine the overall streamlining concept. To insure full documentation and implementation of the coordinated and approved concept, USACIMMC will continue to lead the IEW Sustainment effort. The study team will integrate the approved concept into the overall Army logistics strategy by providing documentation and recommendations to Army activities for input to doctrinal regulations and field manuals. The team will ensure alignment of the concept with developing logistics doctrine from SLA, CAC, CASCOM, and the Ordnance Center.

Sustainment for current systems is funded through many different avenues, including PMs, user MACOMs, and AMC. During the implementation phase, intensive efforts will focus on the funding issues inherent in the current "stovepipe" structure to establish clear funding responsibilities and establishment of budget requirements.

RESPONSIBILITIES

In continuance with current direction, HQ ODCSLOG will continue to provide oversight of the IEW Streamlining effort. The USACIMMC will continue leading the study group in its effort to implement future sustainment for the IEW battlefield. The study group, as appropriate, will continue to include representatives from TRADOC, INSCOM, FORSCOM, SOCOM, and PEO-IEW. Participants will be responsible for staffing and approval of the implementation actions within their MACOM. Coordination, cooperation, and the needs of the Army are key to the rapid and successful implementation of the study group recommendations. The intent is to establish a streamlined, responsive, integrated support structure for key, advanced technology IEW systems as rapidly as possible, but in synchronization with other ongoing logistics efforts. Decisions relating to concepts, taskings, priority shifts, and problem resolution will be addressed through existing command channels.

TASKS AND GUIDANCE

The IEW Streamlining Study Team will take action to achieve the tasks indicated below. Inherent and impacting actions will be identified which must be achieved to complete the implementation of the approved Study Group concept. The Study members will identify inherent actions by their MACOM for concurrent implementation and action.

1. Create a financial control work group to establish a special MDEP to capture all concept related resource requirements, and tracking of execution for compilation of detailed cost analysis. The group will manage realignment of budgeted resources and establishment of IEW systems as part of the HQ DA Training Resource Model (TRM) for MACOM funding allocations.

2. Develop a comprehensive concept implementation plan to include test demonstration procedures with evaluation criteria.

3. Delineate all IEW sustainment contract and civilian support mechanisms and establish a time phased plan for transition within AMC.

4. Document the integrated AMC IEW repair activity to delineate core civilian and military personnel and equipment requirements.

5. Develop a training plan at the institutional level that accommodates technology driven training requirements.

6. Conduct detailed analysis of all IEW non-standard systems for inclusion into the Army stock fund process or exemption request as outlined by the Strategic Logistic Agency.

TIMELINE/MILESTONES

A detailed action plan and implementation plan will be developed upon approval of the concept; in broad terms, the following events are delineated. A time phased transition plan to integrate all civilian support requirements under the single control of AMC will be established by end of 2nd QTR FY 93. The integration of military and civilian resources under single command and control and dedicated civilian augmentation to specific unit requirements will both be tested prior to full scale implementation. Regional support tests will be accomplished at both Ft. Hood during the SLA ISM test and in Korea. AMC augmentation at unit level will be tested at the 204th MI, Augsburg Germany, and 201st MI, Vint Hill Farms Station, in support of one of a kind systems. Once concept approval is obtained the implementation of a six month test should begin during the 2nd QTR FY 93 timeframe. The six month interval will allow for data collection and analysis over the test period and finalization of results and conclusions during 4th QTR FY 93. Approval for full implementation across the total Army of the concept could then be made in September 1993.

SUMMARY

The total integration of IEW sustainment under AMC will provide the Army with a clear single point sustainment ownership for responsive support to the combat commander. This concept retains an environment for intensive management of low density, high dollar, highly complex assets with integration of IEW sustainment into the emerging mainstream Army logistics support methodology.

IEW STREAMLINING STUDY GROUP IN-PROCESS REVIEW

List of Attendees

September 1, 1992

Attendee	Office	Telephone Number
Mr. Ralph Riddle	CIMMC, SELIM-IEW	DSN 229-5047
Mr. Dennis Dutton	CIMMC, SELIM-IEW	DSN 229-5248
Mr. Glenn Taillie	CIMMC, SELIM-IEW	DSN 229-6122
CPT John Loomis	CIMMC, SELIM-IEW	DSN 229-5253
Mr. David Nicholas	BDM International	804-596-6843
Mr. Robert Klebo	BDM International	804-596-6843
Mr. David Condit	BDM International	DSN 229-5262
Mr. Bill Shelton	HQ AMC, AMCLG-SI	DSN 284-9311
Mr. William Mabray	CECOM, Ft Monmouth	DSN 992-2343
Mr. Roger Campbell	CECOM, CSWD	DSN 229-7517
Mr. E. Duane Mitchell	CECOM, CSWD	DSN 229-7232
Mr. Joseph M. DelVecchio	CECOM, CSWD	DSN 229-7204
Mr. Robert Summer	CECOM, CSWD	DSN 229-7096
Mr. Pete Hume	PEO-IEW	DSN 229-5934
Mr. Al Lindley	PEO-IEW, PM-SW	DSN 229-6828
Mr. Tom "Kit" Carson	FORSCOM, J2-AS	DSN 797-3173
Mr. Dick Serrentino	FORSCOM, J4-SM	DSN 367-7284
MAJ Tom Maguire	HQDA, ODCSINT	DSN 227-4714
Mr. Helmut Schelenz	HQDA, ODCSLOG	DSN 225-3280
Mr. James Brown	ManTech (DAMI-PIM)	703-756-2345
Mr. Robert Demy	INSCOM	DSN 229-5047
Mr. Jack B. Shepherd	INSCOM, MSA-V	DSN 229-5838
Mr. John McMahon	INSCOM, MSA-V	DSN 229-5840
MAJ John Reith	TRADOC, CASCOM	DSN 687-2064
Mr. Don Wilson	TRADOC, OMMCS	DSN 746-8816
Mr. Robert St.James	TRADOC, USAISD	DSN 256-2508
Mr. Robert Lovely	TRADOC, USAIC&FH	DSN 821-5579
MAJ Greg Schumacher	USASOC, DCSINT	DSN 239-3446
Mr. Elmer Smith	USASOC, DCSLOG	DSN 239-3411

Enclosure 2 to IEW Streamlining Study
IPR Minutes, 1 September 1992

[Insert CSWD Technology Briefing Slides]

Enclosure 3 to IEW Streamlining Study
IPR Minutes, 1 September 1992

IEW Technology Trends

Signals Warfare Directorate

Developing future SIGINT / EW technology today

Outline

Signals Warfare Directorate
Developing future SIGINT / EW technology today

- Present systems
- Next generation (IEWCS)
- Reliability trends
- TACJAM-A
  - BIT capability
  - Reliability
  - Board repair difficulties
  - Photographs / samples
- Repair cost analysis
- Summary
- Future technology trends - 2005 and beyond

Present IEW Systems

Signals Warfare Directorate
Developing future SIGINT / EW technology today

- 1970's and early 80's technology
- Developed for a European type battlefield
- Processing is slow
- Typically failed catastrophically
- Custom designs
- Difficult to update
- Beginning of BIT

Next Generation IEW Systems

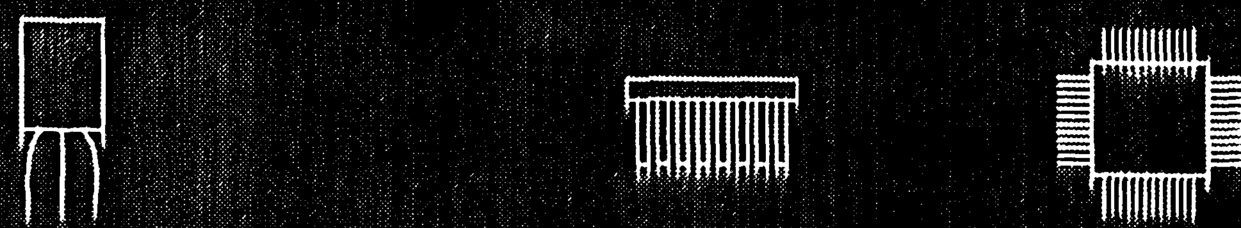
Signals Warfare Directorate
Developing future SIGINT / EW technology today

- Extensive system level BIT
- Degraded modes of operation
- Mission critical CCAs replaced by operator
- High speed Digital Signal Processing
- Modular
- Commonality
- Open systems architecture
- Much higher MTBF

Technology Trends

Signals Warfare Directorate
Developing future SIGINT / EW technology today

Discrete Transistors → Integrated Circuits → VLSI



- Size decreased
- Weight decreased
- Power decreased
- Reliability improved

This is possible through improvements in device design and fabrication techniques

80 % of all device failures are due to manufacturing errors

Manufacturing improvements:

- Learning curve
- Improved designs
- Improved materials
- Improved process
- IPC
- Screening
- Feedback from failure analysis results

Semiconductor device reliability has increased over the years

Reliability trends

	1980	1981	1982	1983	1984	1985	1986	1990
Linear ICs	46	37	23	14	7	5		
Memory		100					50	<10

Units = failures per 10^9 hours

Semiconductor devices are the building blocks for the overall reliability of the CCAs

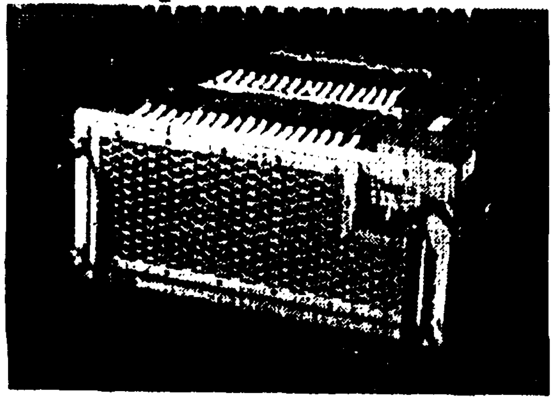
IEW
PROGRAM EXECUTIVE OFFICE

TACJAM-A

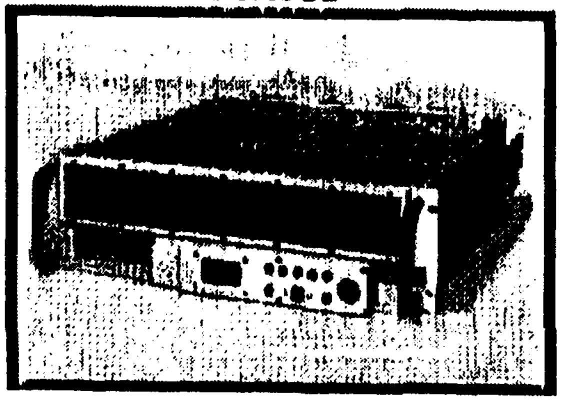
ESM Subsystem

PM SW

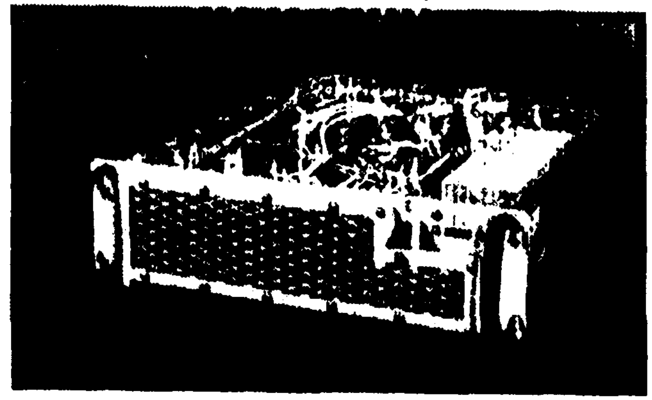
Acquisition Unit



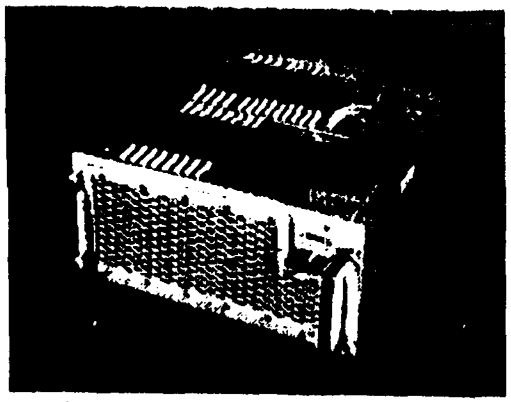
Tuner



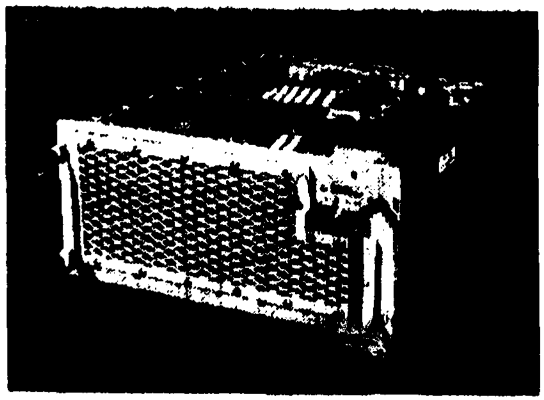
RFD Unit



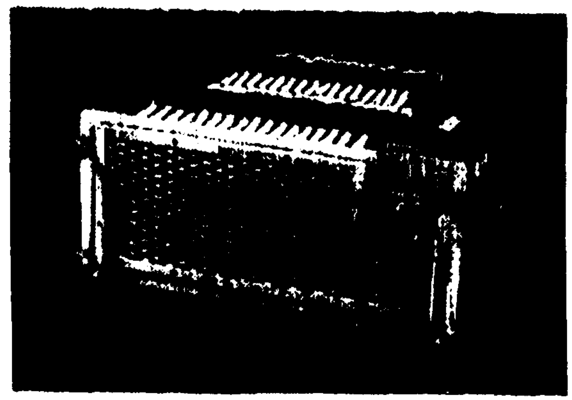
Analysis Unit



Acq/Anal Unit



Acquisition Unit



TACJAM-A BIT Capability

Signals Warfare Directorate
Developing future SIGINT / EW technology today

- Description:
- Types:
  - Full BIT
  - Power up BIT
  - Standalone BIT
  - Background BIT

TACJAM-A BIT Requirements

Signals Warfare Directorate
Developing future SIGINT / EW technology today

- Fault detection:
  - Full BIT 95%
  - Power up 65%
- Isolation:
  - 98% single unit
  - 95% two cards
  - 70% single card
- Standalone capability

TACJAM-A Reliability

- Thermal analysis
  - Low junction temperatures
    - worst case 85°C
- Predictions optimistic vs. pessimistic

TACJAM-A Packaging Complexity Has Increased With Performance Enhancements

Signals Warfare Directorate
Developing future SIGINT / EW technology today

Mar 87 — Phase 1
- Design study

Nov 88 — Phase 2
- Mil VAX B1 BUS
- Plasma workstation
- ECM, Limited ESM
- ASIC-20K gates

Jun 89 — ESM
- Modularity
- BIT
- Color workstations
- Enhanced ESM
- ASIC-75K gates
- Double sided boards
- 1200 interconnects on the board
- Some surface mount technology
- Platform independence
- Fixed size, weight & power

Aug 90 — Advanced Performance Architecture
- Improved ESM
- VME back plane
- Single board computer (68030)
- 12-14 layer printed circuit cards
- 2000 interconnects on the board
- ASIC-105K gates
- Surface mount technology
- Fixed size, weight & power

Jun 91 — Current Design
- 14-16 layer PCB
- Surface mount technology
- ASIC-355K gates
- Fixed size, weight & power
- 3000 interconnects on the board

CHIP Configurations
Evolving Technology

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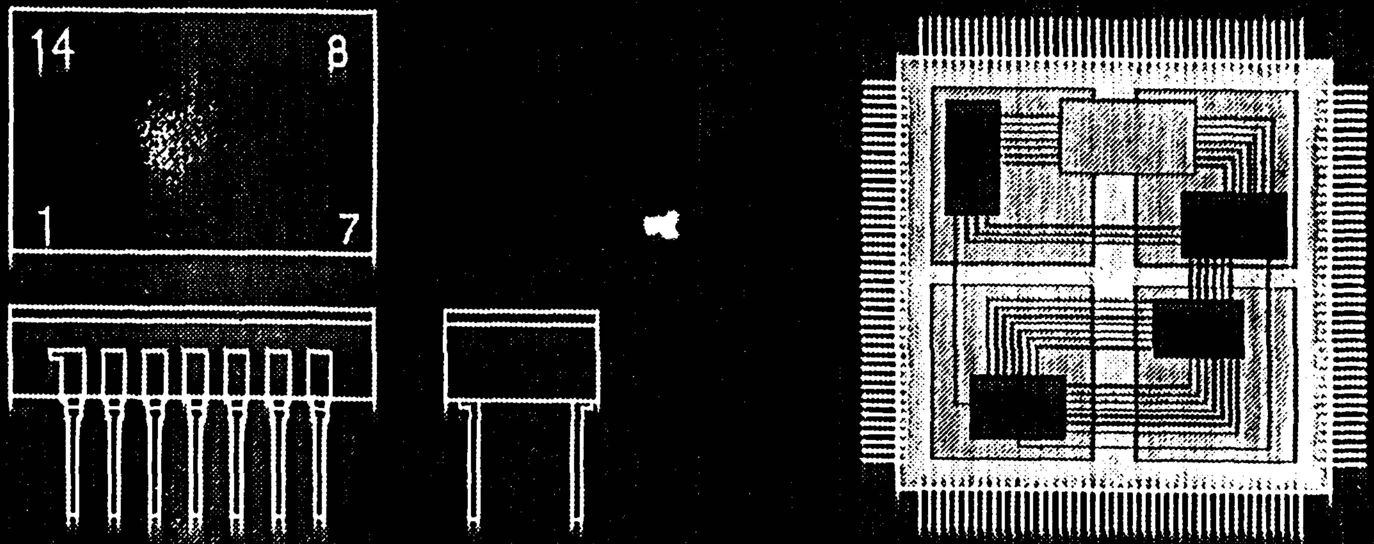

14 pin
brazed ceramic

224 pin
J-lead

Board Repair Difficulties

- Multilayer
- High density
- High speed lines
- Controlled impedance
- Conformal coating
- Surface mount technology

Surface Mount Technology (SMT)

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Advantages:
- Size
- Automation
- Electrical performance

Disadvantages:
- Investment
- Experience
- Components
- Mechanical parameters
- Test, repair, rework

Testability

"Testing a double sided densely packed SM assembly is a nightmare.", The Circuit Designer's Companion, T. Williams

- In-circuit testing
  - discrete vs IC
  - bed-of-nails
- Functional testing
  - manual
  - ATE → High Cost
  - TPS

Repair Cost Analysis

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($ in Thousands)	50 Systems Price / Year	100 Systems Price / Year	150 Systems Price / Year
Gov't	4,601	7,363	10,124
Contractor	3,471	6,572	9,674
Replace	7,365	14,715	22,066

Assumptions:

Number of years = 10
Sanders' labor cost / fix = $7.3K
Gov't labor cost / fix = $6.5K

Repair Cost Analysis

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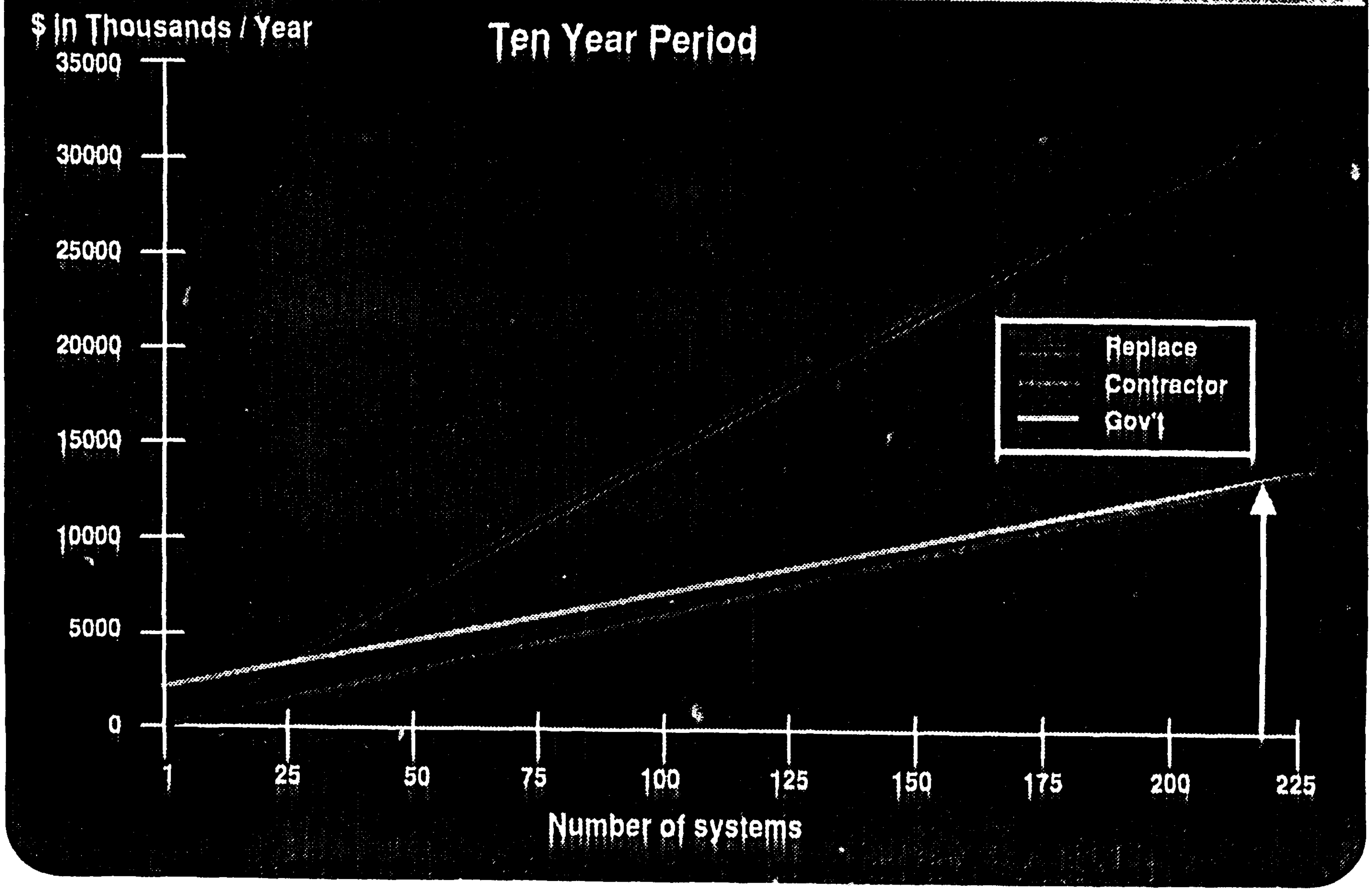


Repair Cost Analysis

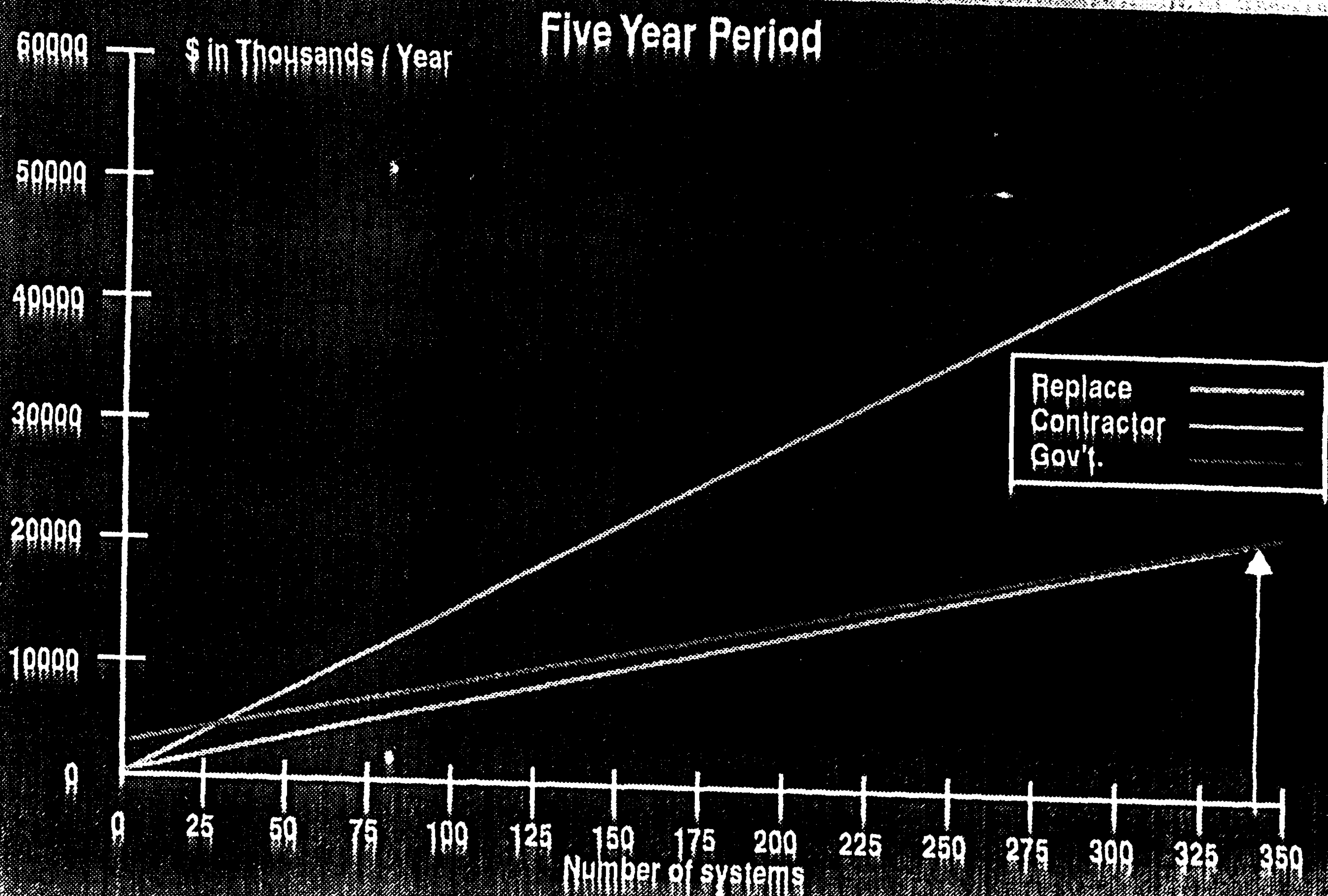
Signals Warfare Directorate
Developing future SIGINT / EW technology today

($ In Thousands)	50 Systems Price / Year	150 Systems Price / Year	300 Systems Price / Year
Gov't	5,577	11,100	19,385
Contractor	3,625	9,828	19,130
Replace	7,380	22,081	44,132

Assumptions:
Number of years = 5
Contractor labor cost / fix = $7.3K + NRE
Gov't labor cost / fix = $6.5K + NRE

Repair Cost Analysis

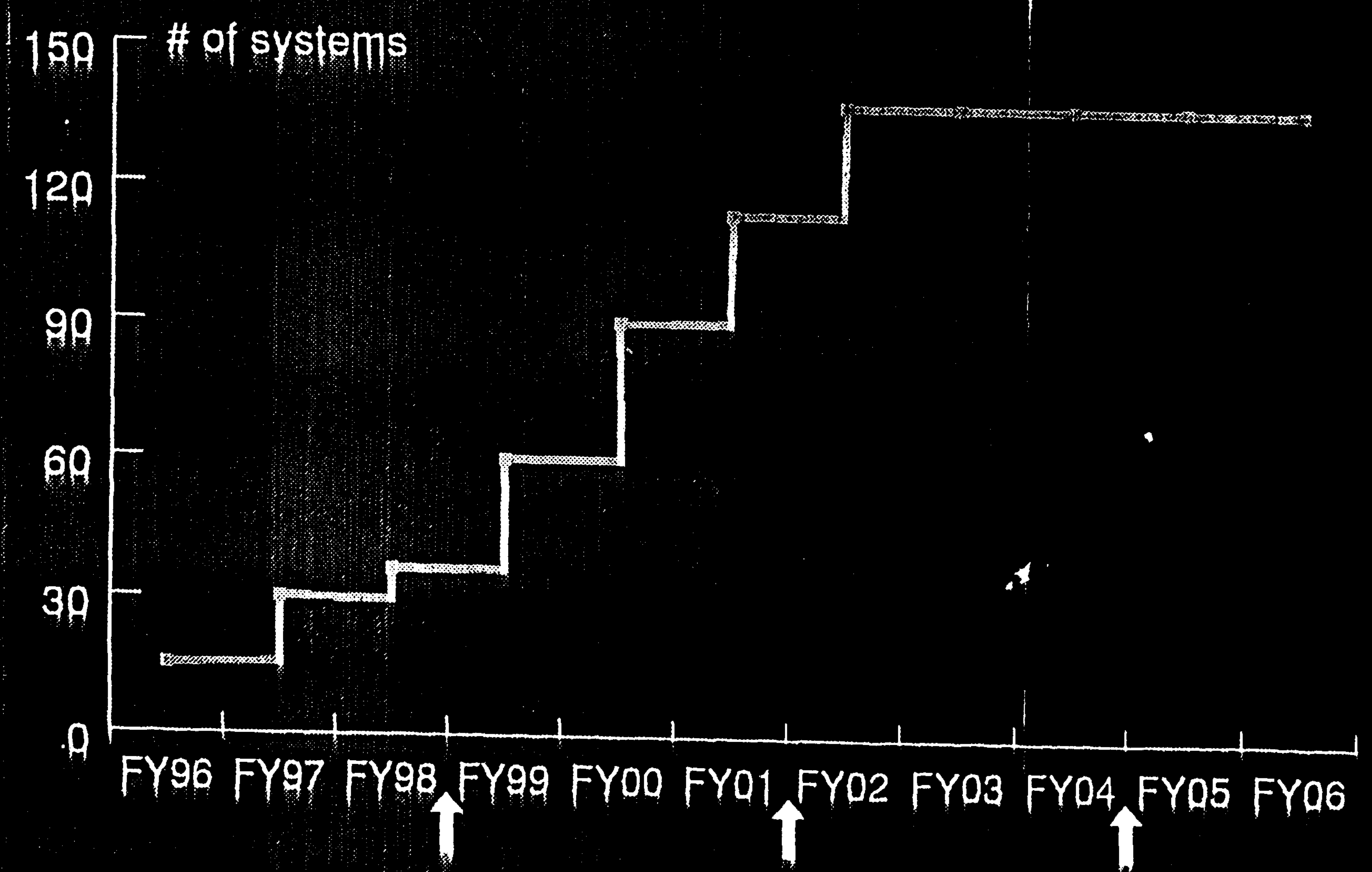
Signals Warfare Directorate
SIGINT / EW Developing future technology today



IEWCS Fielding Status

Signals Warfare Directorate

SIGINT / EW Developing future technology today



Summary

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SIGINT / EW Developing future technology today

How should the Army support SM boards?

High quantity, stable technology → Government support

Low quantity, frequent tech insertion → Contractor Depot

Continue Cost-benefits analysis into the future

- JTAG advances
- ISAs

Future Technological Trends - Post 2005
General Considerations

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Developing future SIGINT / EW technology today

- Expect at least 500 to 1 Reductions in power, size and weight
- Expect 250 to 1,000 times processing throughput improvements
- More reliable platforms, smaller loads
- Fault tolerant systems the norm
- Larger systems will be self healing and reconfigurable with firmware
- Redundant fail-safe power distribution in larger systems
- Few catastrophic failures other than battle damage
- Reduced ILS requirements

2005 and Beyond
System Design and Configuration

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- Flow-graph design and programming techniques using Hardware Description Languages (HDL)
- HDL design automatically gives test vectors for diagnosis and BIT
- Expect ULSIC (Ultra-Large Scale Integrated Circuits) to use 3-D Wafer Scale Integration (WSI) and Multi-Chip-Modules (MCM)
- Processing at antenna - optical downlink - better data - fewer failures

2005 and Beyond
System Design and Configuration

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Developing future SIGINT / EW technology today

- Standard modules will be configurable and programmable for mission needs
- Field configurable common carrier packages for plug and play
- Smart skins, smart helmets, smart vehicles and more
- Lower logic voltage levels for lower heat and power with faster speeds
- Data and clock distribution via optical buses
- Multi-function Chips in Module Assemblies replace CCAs and backplanes

IEW Systems - Post 2005

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Developing future SIGINT / EW technology today

- Standard hardware and firmware will dominate
- Robust Fuzzy Logic and Expert Systems dominate automation of fusion and intelligence processes
- True artificial intelligence starts to become useable about 2010
- Multi-Sensor (ELINT, COMINT, IMINT, MASINT, IR, etc.) remoted Collection, Fusion and Reporting on autonomous platforms
- Distribution of intelligence products will allow sharing resources better
- This distribution adds to redundancy on a mission level scale. In some scenarios we could loose a platform and get info from another platform in the network.

IEW Systems - Post 2005

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Developing future SIGINT / EW technology today

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2005 and Beyond
ILS and Sustainment

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- Most ILS, Configuration Management and Sustainment strategies will be determined automatically using HDL and Concurrent Engineering
- Make, model and serial number and revisions tracked and verified automatically
- System upgrades through automatic distribution or remote programming
- Remoted reconfiguration verification
- LRUs will be Multi-function ULSIC
- BIT, inherent in most complex chip sets, will automatically isolate faults to the chip
- Module Assemblies field repairable through Multi-function chip replacement and / or reprogramming
- Volume production will make most Multi-function chips expendable

2005 and Beyond
ILS and Sustainment (Summary)

- Reduced ILS requirements
- Remote diagnostics and analysis will be prevalent
- Most antenna, cable and power supply failures causes eliminated
- Most conventional field repair requirements gone
- Component swap based on internal or remote computer aided diagnostics
- Inexpensive tools for sub-system component replacements

[Insert DALO-ZA Memorandum, undated, SUBJECT: Army Non-Standard Logistics Systems (NSLS) Policy]

Enclosure 4 to IEW Streamlining Study
IPR Minutes, 1 September 1992

DALO-ZA

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Army Non-Standard Logistics Systems (NSLS) Policy

1. This memorandum states Army policy implementing DMRD 904, Stock Funding of Depot-Level Reparables (SFDLR), for Non-Standard Logistics Systems (NSLS).

2. **DEFINITION.** NSLS are defined as systems in which reparable components are not requisitioned, issued or turned-in through the standard supply systems; or systems in which reparable components are maintained through Contractor Logistics Support (CLS) repair-and-return (or repair-and-replace) programs that do not furnish documentation on issues/turn-ins to the NICP.

3. **BACKGROUND.** This policy focuses on funding logistics support for current systems. While interim solutions must work within the context of systems currently fielded, policy must shape the materiel development process for future systems.

4. **SFDLR STANDARD LOGISTICS SYSTEM POLICY.** Army policy is that the user pays for repairs to fielded systems. The policy applies to all national contracts, whether PM-managed or NICP-managed. Whenever possible, Army systems that require contractor logistics support (CLS) will mirror the issue/turn-in documentation of the standard supply systems. For CLS repair-and-return programs for DLRs, Army policy is to charge the user a standard repair price. (For MACOM-managed CLS programs, these procedures are optional.)

5. **STANDARD REPAIR PRICE (REPAIR-AND-RETURN).** For repair-and-return programs, the standard repair price will consist of the average repair cost for an NSN or family of NSNs, and a surcharge (contract-related logistics operations, transportation, price stabilization rate, and washout rate). The surcharge for the standard repair price will not include all standard surcharge elements. The catalog price for such items will be the repair price. Systems will code purchases without returns (instead of the typical repair-and-return) and bill the NSN's standard price.

6. **FUNDING NSLS--INTERIM PROCEDURE.** Training Resource Model (TRM) estimates user funding requirements, from demand data for cost-drivers on key systems. HQDA can input data on NSLS as a separate line item, but requires defensible cost information. Data at Encl 1 (for cost-driver NSNs only) is required to support input to TRM for MACOM funding. Interim procedure will be used in FY93, with funding adjustments as MACOMs develop defensible costs. Such input to TRM will be used in the FY94 budget cycle.

7. **SYSTEMS CHANGES.**

a. Systems changes must include a capability to distinguish between standard DLR issues and returns (with standard price or credit data to financial systems), and DLR issues and returns incident to repair-and-return (where standard repair cost will be billed), i.e., to charge more than one price for the same NSN. Wholesale system must also include both prices in the AMDF.

b. CASCOM will determine required systems changes to retail supply systems. AMC will develop and implement systems changes to wholesale supply and financial systems. DFAS-IN will develop and implement systems changes to financial systems. Each will provide assessment of systems change impact and implementation plans to Cdr, LEA, NLT __ Nov 92.

c. Some changes may be impractical before implementating the Single Stock Fund (SSF), currently projected for FY95. Cdr, LEA will review plans for retail, wholesale, and financial systems changes, and determine the feasibility of making these changes before SSF implementation.

8. **EXCEPTIONS TO POLICY.** Bringing some items or systems into the standard supply system may not be feasible or cost-effective.

a. **Request for Exemption.** In such cases, MACOMs or system users may request exemption to the SFDLR Standard System Policy providing data shown at Encl 1. This data is needed to support both an exemption to policy, and interim MACOM funding for systems not yet standardized.

b. **Review Process.** Requests for exemption to this standard system policy will be sent to HQDA, ATTN: DALO-SMP. A working group--comprising the system PM, MACOM of primary interest (for single-user systems), SARDA, ODCSOPS, and ODCSLOG--will conduct initial review and write recommendations for final approval at general officer level by SARDA, DCSOPS, and DCSLOG, with DISC4 (for electronic equipment).

c. An alternative to stock-funding of repair costs and charging the user is a national (NICP-managed) contract in which the user issues job orders against the contract, directly citing the user's funds. This alternative should be considered in the review process, especially for low-density, low-turnover systems.

9. **EFFECTIVE DATE.** This policy is effective 1 October 1992.

LEON E. SALOMON
Lieutenant General, GS
Deputy Chief of Staff
for Logistics

Appendix AW

CIMMC Memo, Undated, Subject: IEW Streamlining - Minutes of MACOM Seniors Prebrief (21 Sep 92)

SELIM-IEW

MEMORANDUM FOR RECORD

SUBJECT: IEW Streamlining - Minutes of MACOM Seniors Prebrief (21 Sep 92)

1. This memorandum furnishes subject minutes for information, documentation, and necessary action.

2. A copy of the attendee list is at Enclosure 1.

3. Minutes herein reflect general administrative information, detailed discussions, and current taskings.

4. **General Administrative Information**

a. The MACOM Seniors Prebrief was conducted at CIMMC, Vint Hill Farms Station, VA, from 1330 to 1730, 21 Sep 92.

b. This prebrief was conducted to provide senior command and staff personnel of the participating organizations the following:

(1) an opportunity to hear and discuss the current version of the final study briefing

(2) an opportunity to discuss MACOM position papers and resolve outstanding issues

c. Mr. Dutton provided copies of the draft 1 Sep IPR minutes.

d. A DA action officer level IPR was announced for 23 Sep. Study team personnel from CIMMC and BDM will attend.

e. After administrative announcements, attendees provided self-introductions.

5. **Detailed Discussion**

a. **Training Resource Model (TRM).** The TRM does not contain information on a sufficient number of IEW systems to be useful in calculating the training resources needed for MI units. The common practice within MI units of bypassing the standard supply system has resulted in the absence of demand data with which to calculate resource requirements. CIMMC will work with the appropriate HQDA office in improving the data in the TRM.

b. **IEW Sustainment Streamlining Final Report Briefing.** Mr. Dutton presented the current version of the final study briefing for review and comments by the attendees. Copies of the briefing graphics are provided at Enclosure 2.

c. **TRADOC Position.** TRADOC's representatives indicated their comments were developed prior to a full review of the Sustainment Analysis Report, dated 1 Sep 92. COL Pheneger stated that TRADOC supported the consolidation of contractors and improvements in the management of IEW spares; the TRADOC nonconcurrence with the initial study group concept document was based on the following points:

(1) The study must indicate that MI units need more "fix forward" capability; the Maintenance Allocation Charts (MAC) should be evaluated for movement of repair tasks to lower levels. (Attendees agreed in principle with the caveat that repairs should be performed as far forward as is practical or cost effective. MACs for new systems should be reviewed, but it would probably not prove cost effective to conduct a thorough analysis of existing MACs.)

(2) The concept should cover the role of direct support (DS) to include the handoff or interface between DS and the "X"RA. (The consensus of the attendees was that the MI unit should be authorized to repair as much as was practical and not be limited by traditional definitions of maintenance levels.)

(3) A rigorous cost benefit analysis should be conducted before final approval of the recommendations.

(4) The concept needs to address support of a CONUS-based deployable force during peacetime as well as wartime.

(5) The concept must explain the two-tiered maintenance structure in more detail and differentiate between sustainment maintenance (echelons above DS) and MI unit maintenance (organizational and DS levels).

(6) In order to maintain an adequate early deployment capability, the concept must not lead to a reduction of the level of soldier maintenance (i.e., the numbers of soldiers performing IEW maintenance relative to the overall size of the Army). The concept should support improvements in the level of soldier repair skills.

d. **INSCOM Position.** INSCOM feels that all IEW item management should be consolidated at CIMMC and opposes anything that will reduce the materiel readiness of INSCOM assets. In addition, INSCOM feels the study must adequately address the following:

(1) What will be the cost of implementation? Regarding Stock Funding of Depot Level Reparables (SFDLR), customers should be billed a repair cost (with an administrative overhead figure) when they have turned in a reparable item.

(2) The concept should explicitly state that it only applies to tactical MI systems (P2-funded programs); however, the MACOMs should have the option to use the standard support structure where feasible.

(3) Since the concept currently recommends that DA DCSLOG should approve any exceptions to the approved structure, INSCOM would like to know the process by which DCSLOG will handle requests for exception.

c. **PEO-IEW.** PEO-IEW concurs and adds the following comments:

(1) The study should recommend formation of budget or funding working groups to determine how best to provide resources for the new sustainment system.

(2) The study group should coordinate with the CECOM Software Engineering (CSE) Directorate and incorporate software support in the sustainment concept.

(3) All materiel acquisition activities should be provided the same flexibility regarding acquisition, fielding, and sustainment regulations.

d. **USSOCOM.** As represented by USASOC, SOCOM feels that SOF-peculiar (MFP 11) items should be outside the scope of the Streamlining Study; however, SOCOM would like to be able to obtain sustainment through standard channels when advantageous or cost effective. In other words,--

(1) USASOC supports the recommended IEW sustainment concept for type classified IEW systems.

(2) USASOC will select support for SOF-peculiar items based upon most cost-effective and most responsive criteria.

e. **FORSCOM.** FORSCOM concurs pending the outcome of proof-of-principle demonstrations.

f. **General Comments**

(1) The MACOMs want to be actively involved in the proof-of-principle demonstrations.

(2) The new sustainment system must provide flexible support, especially as open architecture systems change rapidly.

(3) Key to the credibility of the study is the unity of MACOM participants in supporting the overall recommendations.

6. **Current Taskings**

Number	Action Item	POC	Suspense
I2245-002	Provide attendance info on General Officer Review	MACOMs	30 Sep 92
I2245-003	Provide corrections to Volumes I and II of Final Study Report	MACOMs	ASAP

IEW STREAMLINING STUDY
MACOM SENIORS PREBRIEF

List of Attendees

September 21, 1992

Attendee	Office	Telephone Number
Mr. Larry D. Scheuble	Director, CIMMC	DSN 229-5011
Mr. Ralph Riddle	CIMMC, SELIM-IEW	DSN 229-5047
Mr. Dennis Dutton	CIMMC, SELIM-IEW	DSN 229-5248
Mr. Glenn Taillie	CIMMC, SELIM-IEW	DSN 229-6122
CPT John Loomis	CIMMC, SELIM-IEW	DSN 229-5253
Mr. Rex Monroe	CIMMC, TSD	DSN 229-5082
Mr. Bela Csendes	CIMMC, GSD	DSN 229-6457
Mr. Leon Davis	CIMMC	DSN 229-6280
Mr. Harry Wiggins	PEO-IEW	DSN 229-5179
Mr. Pete Hume	PEO-IEW	DSN 229-5934
Mr. Al Lindley	PM-SW	DSN 229-6828
Mr. Richard Serrentino	FORSCOM, J4-SM	DSN 367-7284
Ms. Karen Owens	FORSCOM, J2	DSN 367-6543
Mr. Ron Altman	INSCOM	DSN 229-1632
Mr. Robert Demy	INSCOM	DSN 229-1746
COL Michael Pheneger	TRADOC, USAISD	DSN 256-2806
Mr. Robert St. James	TRADOC, USAISD	DSN 256-2508
Mr. Robert Lovely	TRADOC, USAIC&FH	DSN 821-5579
Mr. Patrick J. Monahan	USASOC, DCSLOG	DSN 239-4662
Mr. Elmer Smith	USASOC, DCSLOG	DSN 239-3411
MAJ Greg Schumacher	USASOC, DCSINT	DSN 239-3446
Mr. Bill Shelton	HQ AMC, AMCLG-SA	DSN 284-9311
Mr. David Nicholas	BDM International	804-596-6843
Mr. Robert Klebo	BDM International	804-596-6843
Mr. Walt Mokey	BDM International	804-596-6843
Mr. David Condit	BDM International	DSN 229-5262

Final Report Briefing Slides

Enclosure 2 to IEW Streamlining Study
MACOM Seniors Prebrief Minutes, 21 September 1992

LEFT SLIDE

INTELLIGENCE AND ELECTRONIC WARFARE SUSTAINMENT STREAMLINING STUDY

FINAL REPORT

21 SEPTEMBER 1992

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

OUTLINE

- PURPOSE
- TASKING REVIEW
- DISCUSSION OF FINDINGS
- OPTIONS CONSIDERED
- RECOMMENDATION/POSITIONS
- SUMMARY

LEFT
SLIDE

PURPOSE OF BRIEF

TO PRE-BRIEF THE STUDY RESULTS WITH RECOMMENDED CONCEPT AND COMMAND POSITIONS PRIOR TO A HQDA GENERAL OFFICER LEVEL PRESENTATION.

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT
SLIDE

OUTLINE

- PURPOSE
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LEFT SLIDE

STUDY DRIVERS

OPERATION DESERT SHIELD AND DESERT STORM SUSTAINMENT

- UTILIZATION OF:
  - NON-DEVELOPMENTAL SYSTEMS
  - TRAINING AND EXPERIMENTAL SYSTEMS
  - STANDARD ARMY SYSTEMS
- SUPPORT EXECUTED BY MULTIPLE ARMY ORGANIZATIONS

REDUCTION OF DUPLICATIVE EFFORTS ASSOCIATED WITH:

- MULTIPLE SUPPORT CONTRACTS
- CONTRACTOR AND GOV'T MANAGEMENT OVERHEAD
- FACILITIES (ON-SITE AND OFF-SITE)

INSTITUTIONALIZE RESPONSIVE DOCTRINE

GENERALS TUTTLE AND SCANLON

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

PROBLEM STATEMENT

"... THE OBJECTIVE OF THIS ANALYSIS IS TO DETERMINE HOW TO [redacted] AND [redacted] BATTLEFIELD SUSTAINMENT OF IEW OPERATIONS ON A DYNAMIC AND AUSTERE AIRLAND BATTLEFIELD, WITH PARTICULAR FOCUS ON SUPPORT TO [redacted] TECHNOLOGY [redacted]."

"... APPROVED AN IN-DEPTH ANALYSIS OF IEW BATTLEFIELD SUSTAINMENT WITH SPECIFIC FOCUS ON THE [redacted] THAT DEVELOPED IN SUPPORT OF DSS."

VCSA HQDA MESSAGE DTG 012000Z NOV 91

"... CONDUCT A [redacted] REVIEW OF BATTLEFIELD IEW FOR ALL ECHELONS OF SUSTAINMENT."

LETTER VCSA 01 NOV 1991

LEFT SLIDE

STUDY PARTICIPATION

INITIAL

HQDA
ODCSOPS - OVERSIGHT LEAD
ODCSLOG
ODCSINT

USAMC
HQAMC - OVERSIGHT
CIMMC - STUDY LEAD

USFORSCOM
FCJ2 - LEAD
FCJ4

USATRADOC
INTEL CTR & SCH

USAINSCOM
ODCSLOG

USAEUC
J2

PEO-IEW
LOGISTICS

FROM OPERATIONS AND INTELLIGENCE TO LOGISTICS

CURRENT

[redacted]
ODCSOPS
ODCSLOG - OVERSIGHT LEAD
ODCSINT

USAMC
HQAMC - OVERSIGHT
CIMMC - STUDY LEAD

[redacted]
FCJ2
FCJ4 - LEAD

[redacted]
INTEL CTR & SCH - LEAD
CASCOM
OMMC & SCH
ISD

USAINSCOM
ODCSLOG

[redacted]
J4

PEO-IEW
LOGISTICS

21IPR4-04

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

RECOMMENDATIONS

PROBLEM STATEMENT

- Establish Single Point Sustainment Ownership
- Consolidate All Contract Support Under AMC Control
- Recognize Non-Regulatory Restrictive Civilian GS Mission
- Fully Integrate GS Soldier/Civilian Resources
- DA DCSLOG Approve Exceptions

STUDY SURFACED

- Establish Supply Visibility of All Spares
- Establish Financial Control Workgroup
- Consider Follow-On Analysis of:
  - System Software Sustainment
  - BOIP Process Cycle-Time Reduction

21IPR-R04

LEFT SLIDE

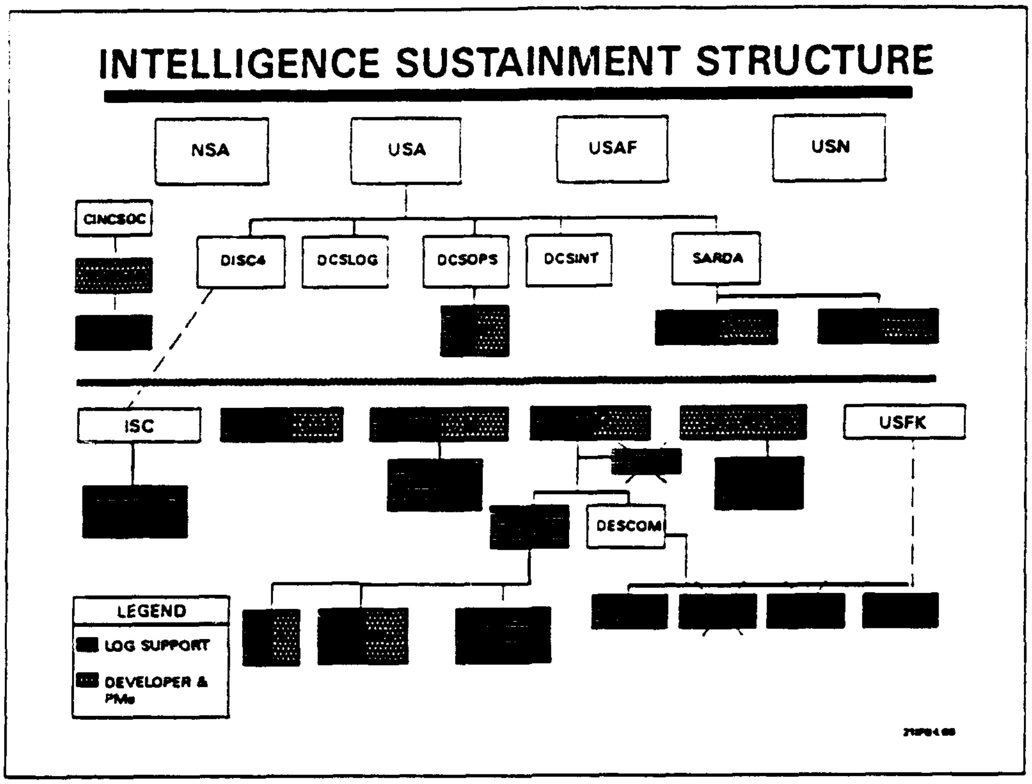
OUTLINE

- PURPOSE
- TASKING REVIEW
- ➡ DISCUSSION OF FINDINGS
- OPTIONS CONSIDERED
- RECOMMENDATION/POSITIONS
- SUMMARY

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

LEFT SLIDE



IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

EQUIPMENT STUDY SET
SELECTION CRITERIA

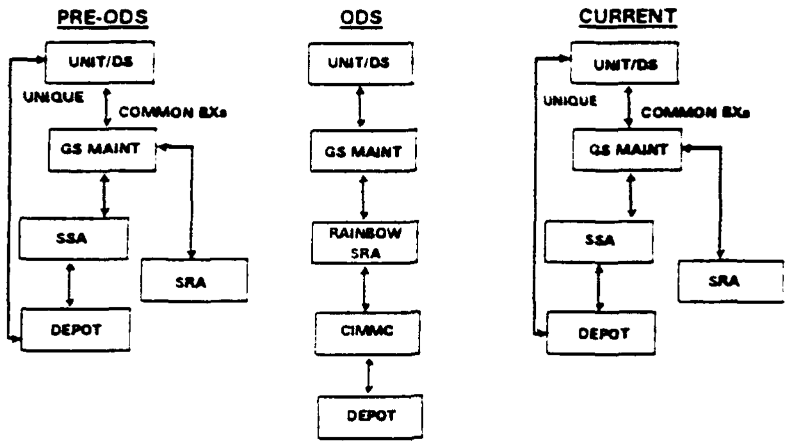
A SAMPLE OF CURRENT AND FUTURE IEW SYSTEMS

WHICH REPRESENTS:

- EAC AND ECB SYSTEMS
- DEVELOPMENTAL/NON-DEVELOPMENTAL SYSTEMS
- ARMY STANDARD/NON-STANDARD
- PEO/MACOM ACQUIRED SYSTEMS
- LOW DENSITY (VOLUME)

LEFT SLIDE

TRAILBLAZER SUPPORT
(AN/TSQ-138)



IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

TRAILBLAZER SUSTAINMENT
(AN/TSQ-138)

Sustainment Information

-Maintenance Concept:

ORG/DS/GS/Depot

Unit Level: 33T

Contract Mgr: N/A

Cost Per Year: N/A

DS Level: 33T

Contract Mgr: N/A

Cost Per Year: N/A

GS Level: Contractor (ManTech)

Contract Mgr: USACIMMC

Cost Per Year: FY93-$196K

Depot Level: DAC-SAAD

Contract Mgr: USACIMMC

Cost Per Year: N/A

-Supply Concept:

UNIQUE: UNIT/DEPOT

Unit Level: No Stockage

DS Level: PLL/Shop Stock

Spare LRUs

GS Level: ASL/Shop Stock

Spare LRUs for DX

Repair-Contractor

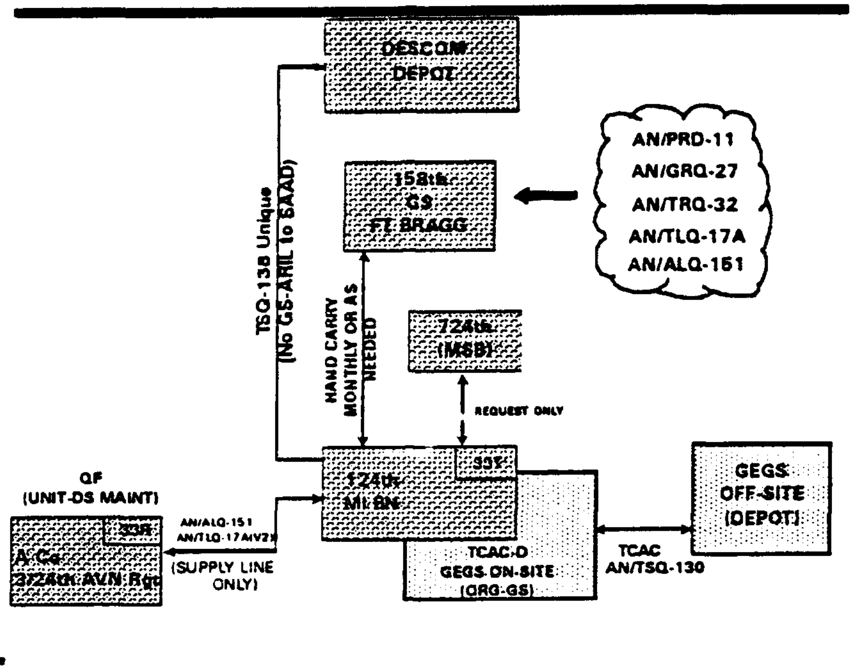
NICP: B46 (USACIMMC)

Gov't Manpower: P/O Omnibus 1 MY

Contractor Manpower: P/O Omnibus 52 Man-Years

LEFT SLIDE

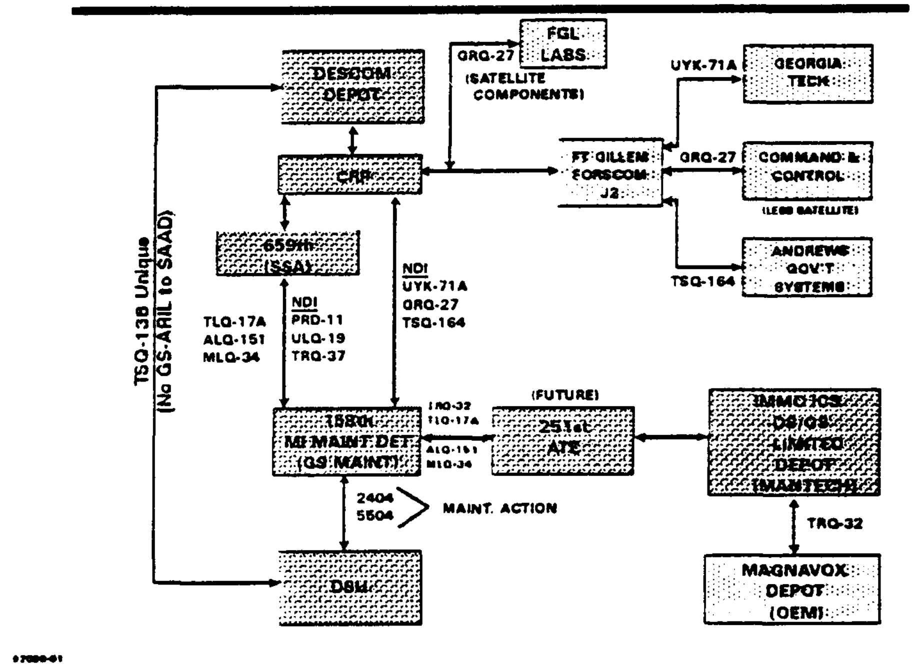
FT. STEWART SUPPORT FLOW



IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

Ft. BRAGG SUPPORT FLOW



LEFT SLIDE

THEATER

LEVEL

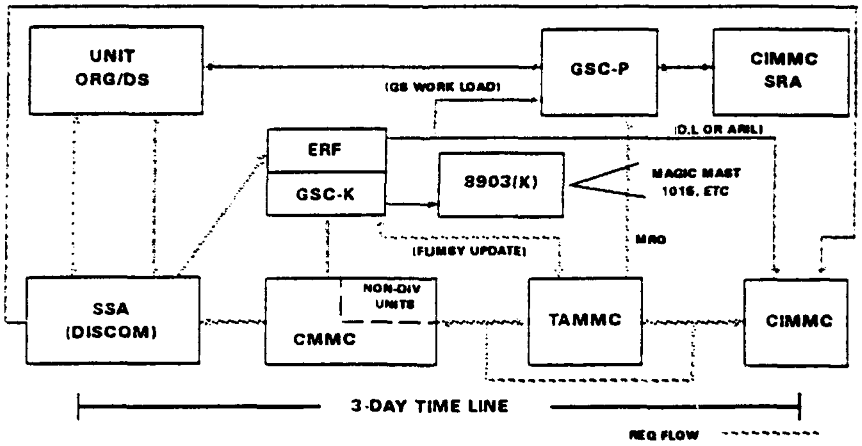
HDW/REQ

FLOW

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

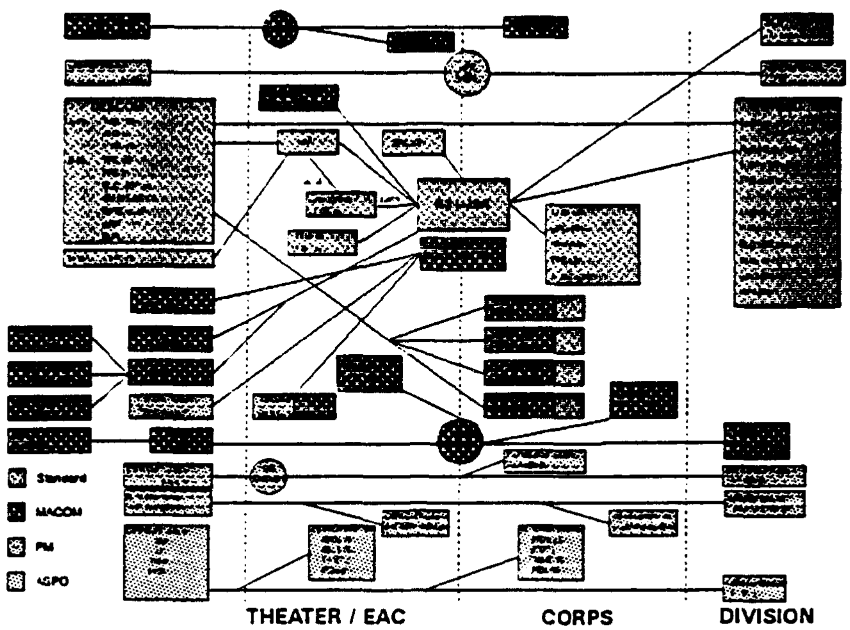
USAREUR IEW SUSTAINMENT



ERF - EUROPEAN REDIST. FACILITY (DIVISION UNITS);
2 FACILITIES DESCOM OPERATES
GSC - GENERAL SUPPORT CENTER (CORPS UNITS); 21st TEAM OPERATED
HDW FLOW FROM DIV SSA TO GSC-P APPROX. 35-75 DAYS

LEFT SLIDE

FRACTURED SUSTAINMENT



IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

DSS ISSUES

- Requisition/Retrograde Supply Problems } ARMY WIDE
- Civilians Forward of Corps Rear } ARMY WIDE
- Deployment of Multiple Support Organizations
- IEW Sustainment Plan Theater Developed
- Control/Accountability of Contractors and DACs
- Compartmented System Sustainment
- Confused Ownership of MI GS Detachments

LEFT SLIDE

FACTS

Stock Funding

- IEW Support Has Multiple Funding Schemes
- DA Training Resource Model Inadequate for IEW
- User Demands Cost Based Repair

Force Structure

- RC No GS Supported Same as AC
- HEMCO/LEMCO Merge to Create ORD (Maint) Co (GS)
- TAA99 Reduces GS to 2 COMSEC/IEW PLTs
- FORSCOM Scrub GS CO-Proposes 3 FORSCOM PLTs

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

FACTS

Acquisition/Technology

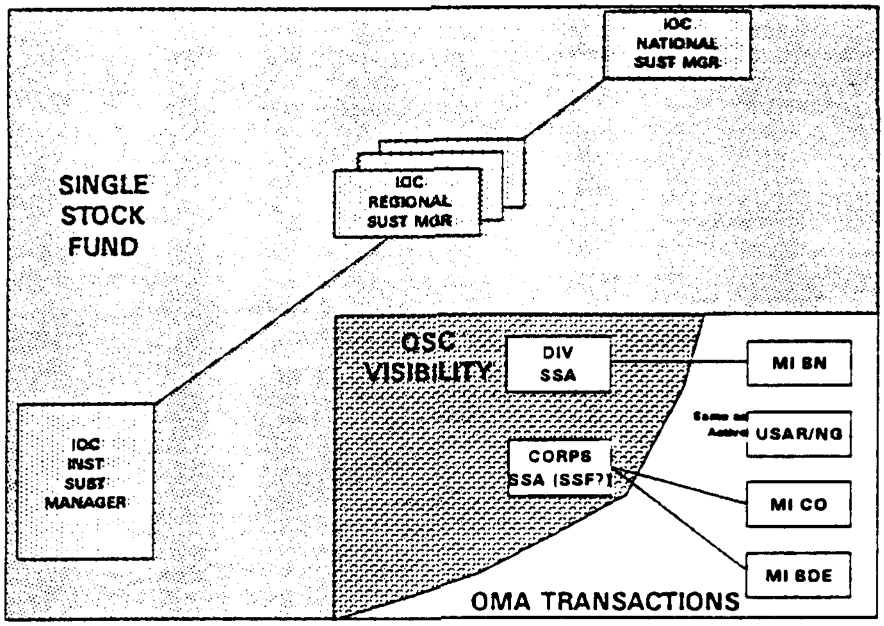
- Technology Insertion Key
- Increased Field Prototyping

OEM Skills Available

- NDI Utilization Will Grow
- HDW/SW Interdependance Drives Integrated Repair Skills
- High Dollar/High Tech/Low Density Drives:
  - Source of Repair
  - User Demand for Cost Based Repair
- BOIP Not Responsive to STD/NDI Needs

LEFT SLIDE

ISM SSF OSC INTEGRATION



IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

RIGHT SLIDE

EVOLVING LOGISTICS CONCEPTS

Integrated Sustainment Maintenance
- AMC Owns & Executes All Sustainment Above DS
  - GS Level at Installation DOLs
  - GS Regional Activities
  - Depot Level Activities
- Establishes National, Regional, and Installation Sust. Mgr.

Single Stock Fund
- AMC Manages Stock Fund
- Eliminates Retail and Wholesale Stock Funds
- Effects Echelons Above Direct Support

Objective Supply Capability
- Asset Visibility Down to Division Stock Accounts
- Cross Levels Stock Across Retail Accounts

Readiness Based Maintenance
- Drives Maint. & "Push" Supply Priorities
  - System Readiness
  - Change in OP Tempo
  - Exercise/Deployment Requirements

LEFT SLIDE

ASSUMPTIONS

- FORSCOM GS COMSEC/IEW/ATE PLT Proposal Accepted
- Emerging Army Logistics Concepts Mature
  - Single Stock Fund
  - Integrated Sustainment
  - Logistics Support Group
  - Objective Supply Capability/Total Asset Visibility
  - Readiness Based Maintenance
- Civilians Can Work Fwd Corps Rear Boundary
- Civilian Use Not Constrained by AR 750-1 (SRA)

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
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OUTLINE

- PURPOSE
- TASKING REVIEW
- DISCUSSION OF FINDINGS
- ➡ OPTIONS CONSIDERED
- RECOMMENDATION/POSITIONS
- SUMMARY

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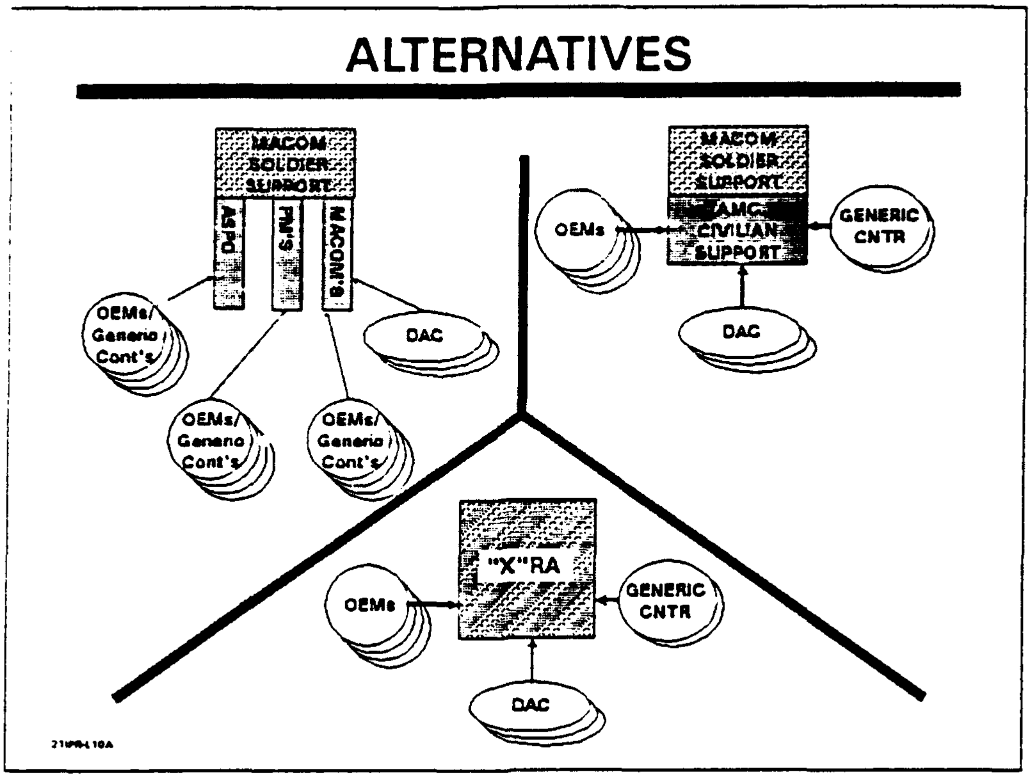

IEW SUSTAINMENT STREAMLINING STUDY
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RIGHT SLIDE

PROBLEM STATEMENT

" ... THE OBJECTIVE OF THIS ANALYSIS IS TO DETERMINE HOW TO [redacted] AND [redacted] BATTLEFIELD SUSTAINMENT OF IEW OPERATIONS ON A DYNAMIC AND AUSTERE AIRLAND BATTLEFIELD, WITH PARTICULAR FOCUS ON SUPPORT TO [redacted] TECHNOLOGY [redacted]."

" ... APPROVED AN IN-DEPTH ANALYSIS OF IEW BATTLEFIELD SUSTAINMENT WITH SPECIFIC FOCUS ON THE [redacted] THAT DEVELOPED IN SUPPORT OF DSS."

VCSA HQDA MESSAGE DTG 012000Z NOV 91

" ... CONDUCT A [redacted] REVIEW OF BATTLEFIELD IEW FOR ALL ECHELONS OF SUSTAINMENT."

LETTER VCSA 01 NOV 1991

21IPR-009

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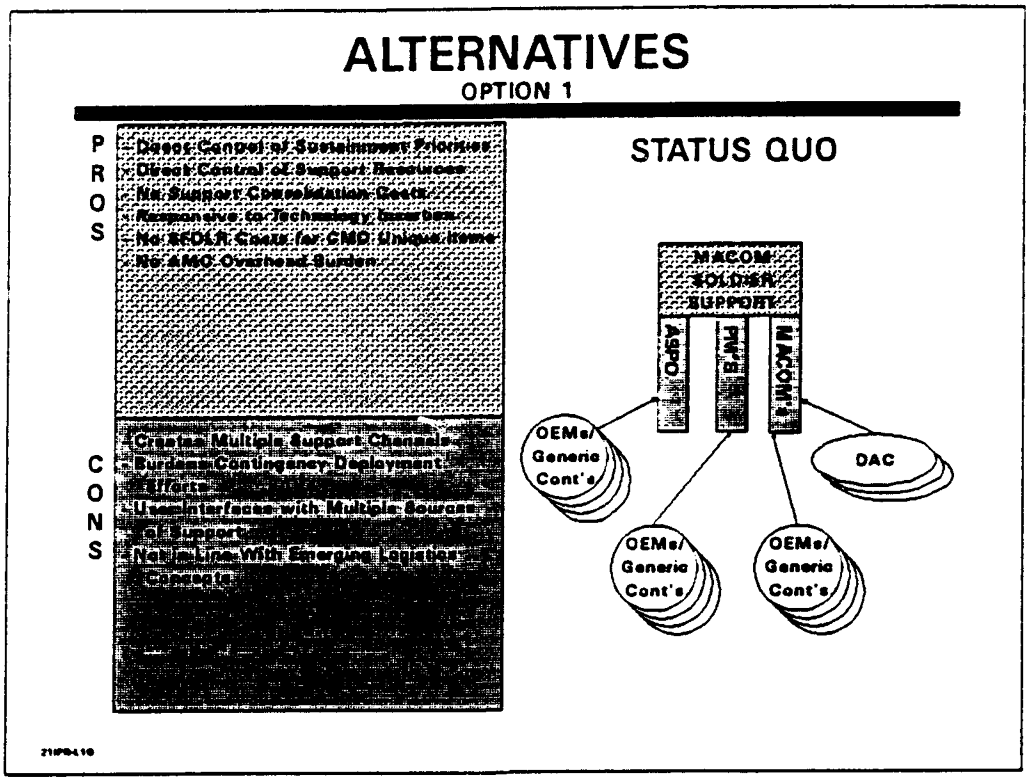

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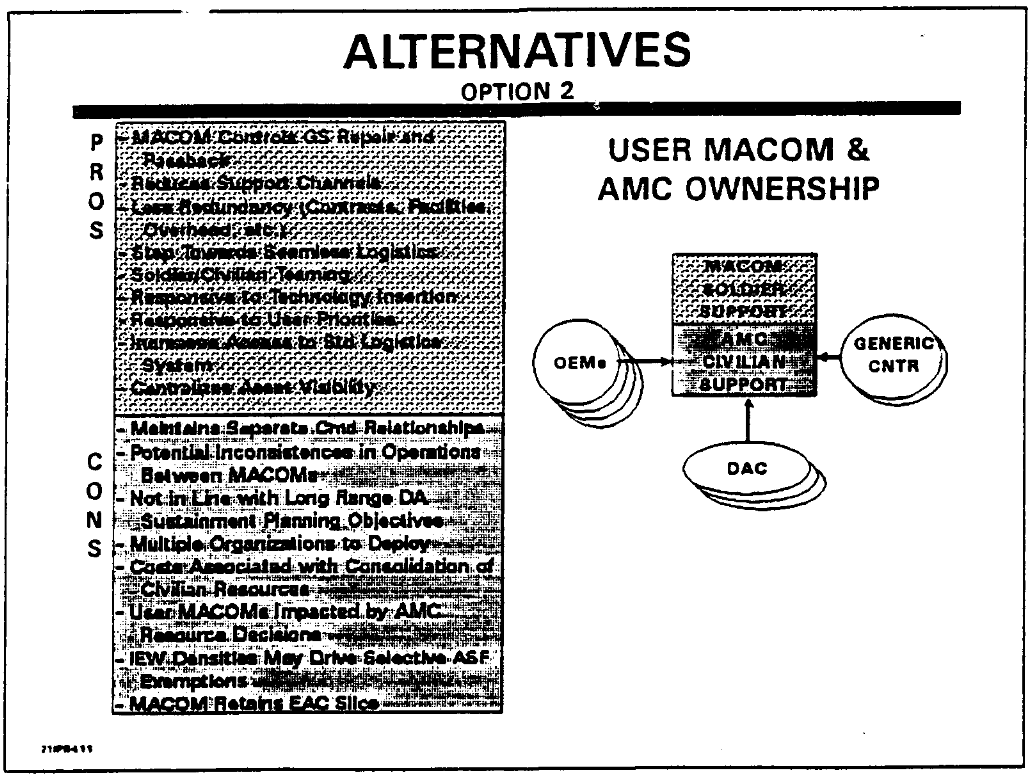

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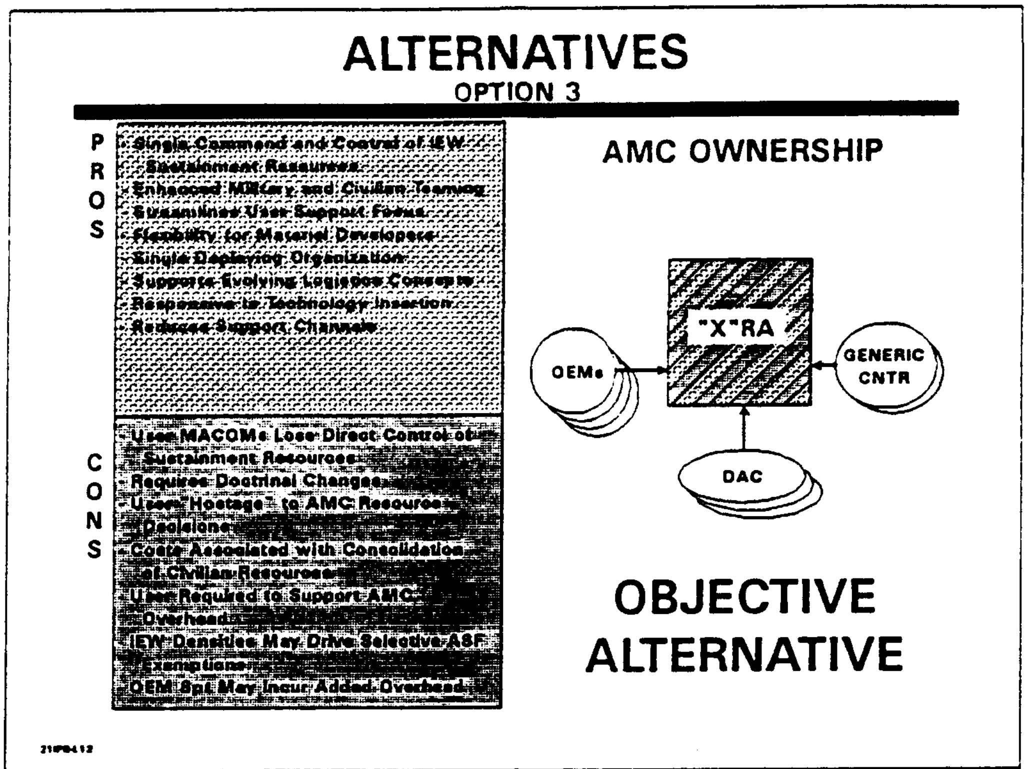

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21 SEPTEMBER 1992

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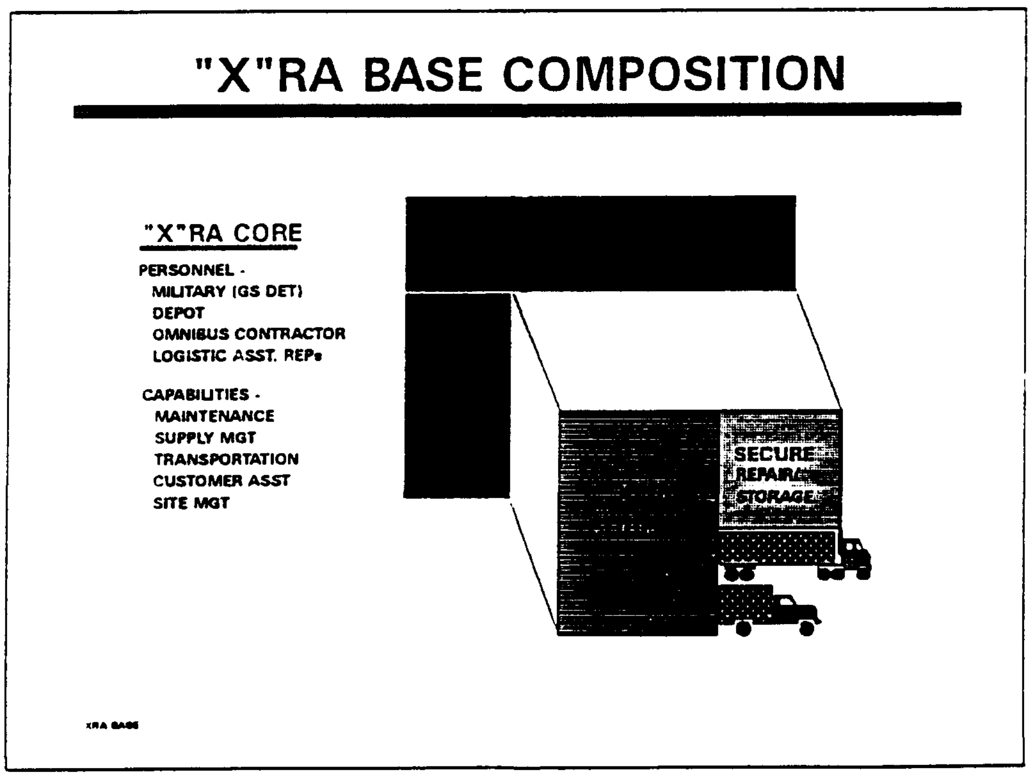

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FORSCOM NDI EXPERIENCE

- Soldier Support Very Effective
- Support Documentation Mix of Commercial/Military Data
- Current Level of Documentation Evolved Over Time
- Hot Mock-Ups Provided
- Off-Line Supply Support Provided Through J2
- As With Std Sys, Available Skills Subject to Troop Turnover
- Training Heavily Dependent on Contractor-Provided Training

SUPPORT CAPABILITY WAS NOT A TURN-KEY OPERATION, BUT RATHER AN EVOLUTIONARY PROCESS.

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
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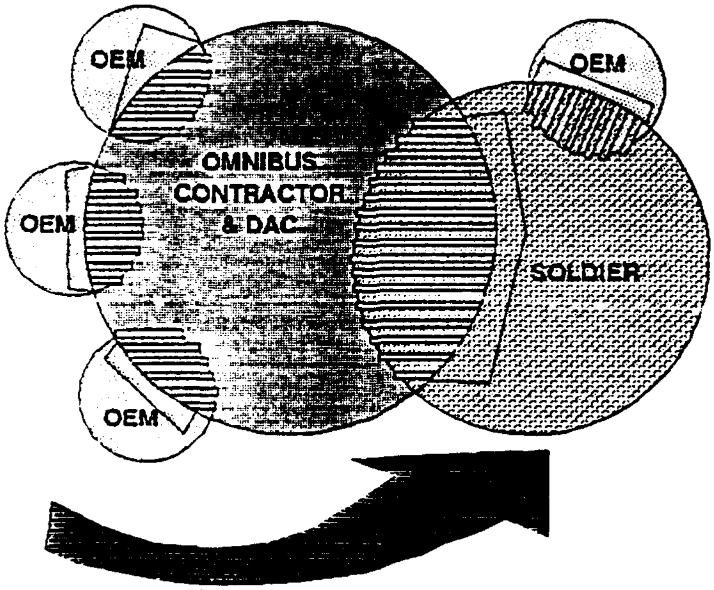
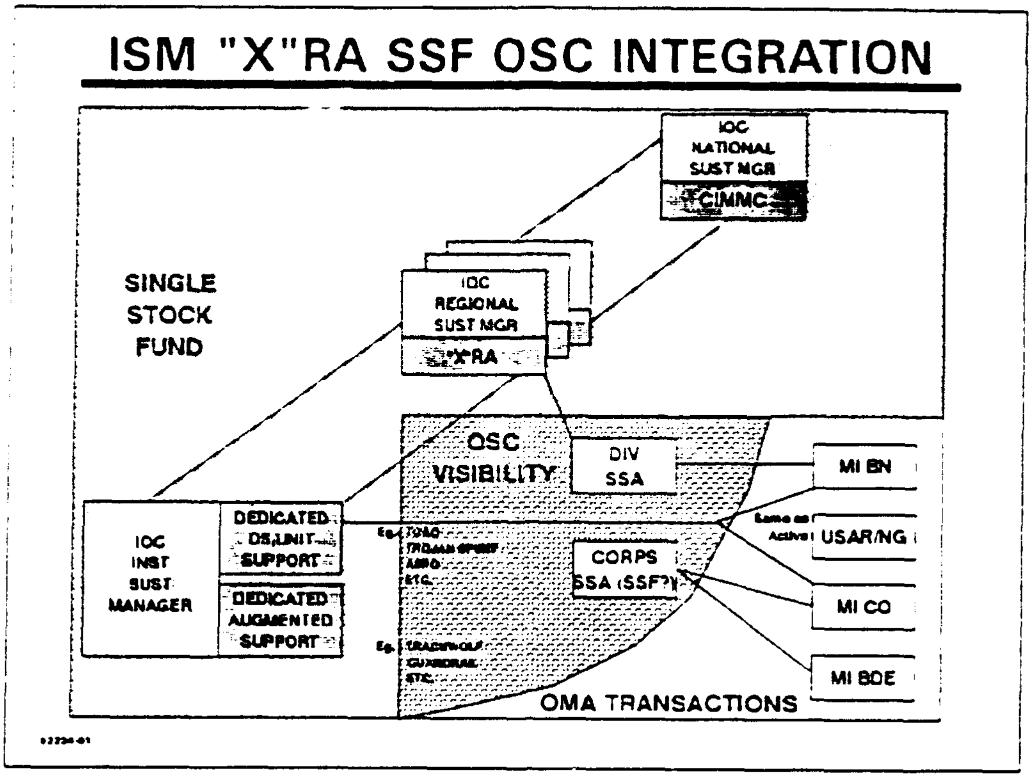
KNOWLEDGE TRANSFER KEY



FOCUSED ON SOLDIER SKILL ENHANCEMENT

LEFT SLIDE



IEW SUSTAINMENT STREAMLINING STUDY
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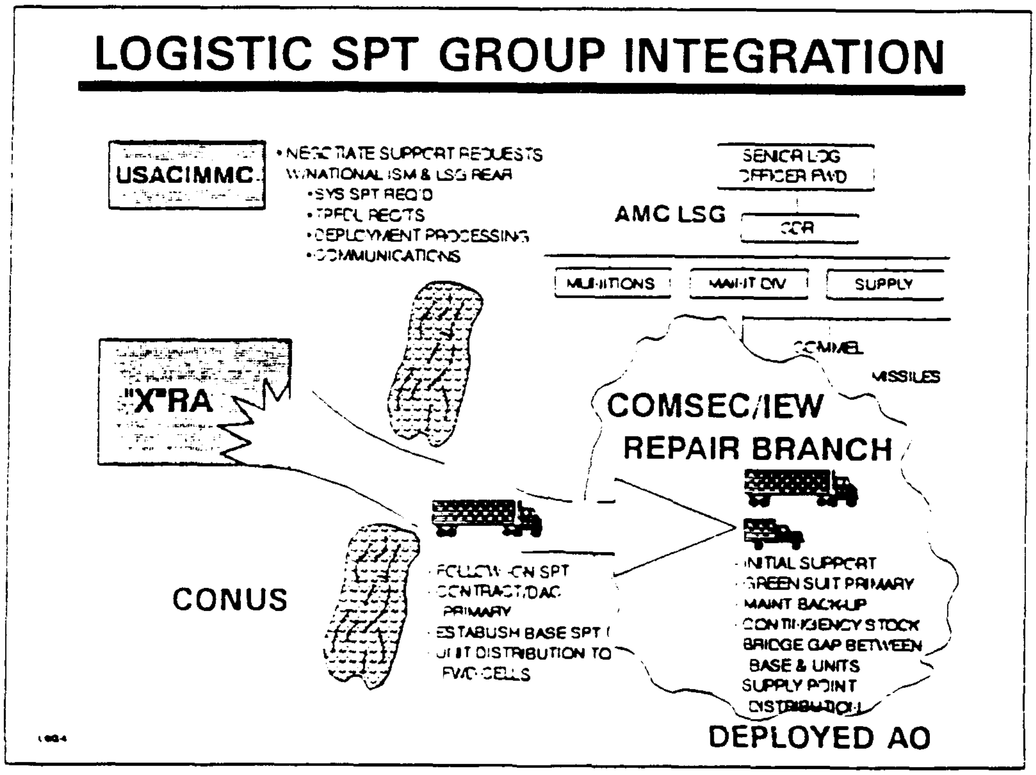

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WHAT WILL THIS COST?

- Repair Cost (Labor/Parts)
- Repair Center Surcharge (Trans., Washout, Price Stabilization, Contract-Related Log Ops

HOW WILL THE REPAIR BE FUNDED?

- Stock Fund (Repair Price vs Acq Price) Transaction
- ISA w/User (QTR Reconciliation)
- Direct Funded Through AMC

✔ **IEW NSLS Must Be Resolved**
✔ **TRM Must Be Accurate For User Funding**
✔ **Appropriate Funding Realignments Complete**

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
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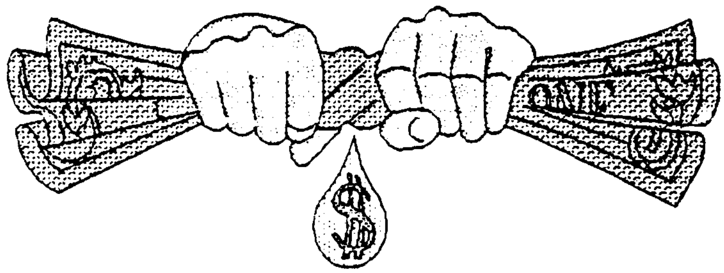
RIGHT
SLIDE

WHAT ABOUT RESPONSIVENESS?

- Linkage vs Fragmentation
- Single Sustainment Ownership
- Single Deploying Organization
- Available Linkage to Std Automated Systems
  - Current
  - Future
- More Capability During Period of Reducing Dollars
- Reduction in Turnaround Time for Repairs
  - Central Workloading
  - Fwd Connectivity w/Fixed Maint. Source
  - Leverage Contract Supply Assistance
  - Enhanced OJT Capability

LEFT SLIDE

QUALITATIVE SAVINGS



SAVINGS OPPORTUNITIES
Facilities
Less TMDE Required
Fewer Contractors
Reduced Gov't Contract
Overhead
Fewer Intraservice Support
Agreements

MACOM/AMC/
PM/ASPO
CONTRACTS

OMNIBUS
w/Sub-Contracts
Essential OEMs

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

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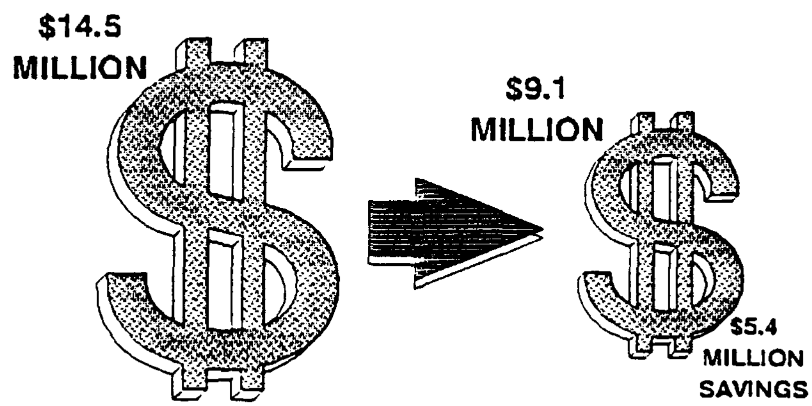
PAST QUANTITATIVE SAVINGS

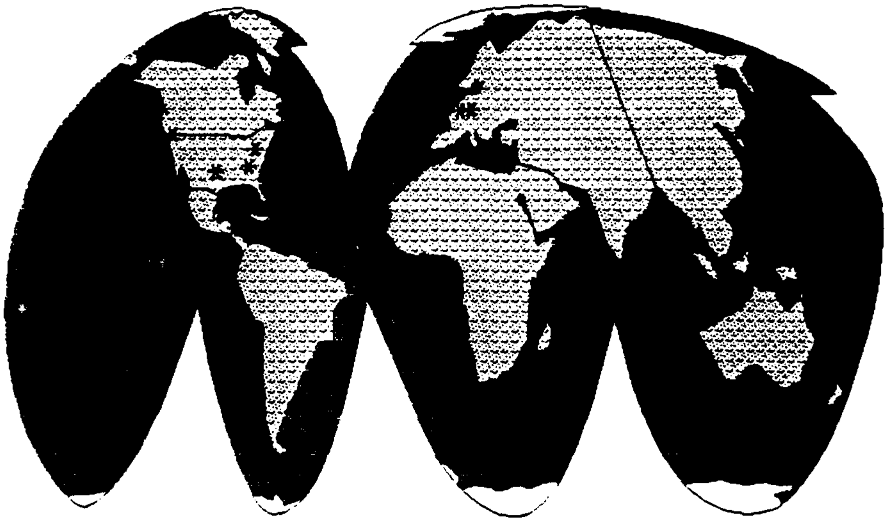
FY89 ICS CONTRACT MAINTENANCE CONSOLIDATION



OEM MSQ-103	Emerson Electric	OMNIBUS CONTRACT
OEM TRQ-32	Magnavox	
OEM TLQ-17A	Fairchild	
GENERIC MLQ-34	ERI	

LEFT SLIDE

WORLDWIDE IEW SUSTAINMENT



"X"RA *

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

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OUTLINE

- PURPOSE
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RECOMMENDATIONS

PROBLEM STATEMENT →

- Establish Single Point Sustainment Ownership
- Consolidate All Contract Support Under AMC Control
- Recognize Non-Regulatory Restrictive Civilian GS Mission
- Fully Integrate GS Soldier/Civilian Resources
- DA DCSLOG Approve Exceptions

STUDY SURFACED →

- Establish Supply Visibility of All Spares
- Establish Financial Control Workgroup
- Consider Follow-On Analysis of:
  - System Software Sustainment
  - BOIP Process Cycle-Time Reduction

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

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PARTICIPANT POSITIONS

USAMC: CONCUR

USFORSCOM: CONCUR - Pending ISM Implementation

USATRADOC: NON-CONCUR

USAINSCOM: CONCUR w/Conditions
- Resources Prime Concern (Repair $ vs. ASFDLR)
- Limited to AirLand Battlefield
- Exception Process Established
- Centralize All Item Mgt At IMMC
- MACOMs Have Increased ILS Planning Input
- Recommend Establishment of MEILSR Oriented ILS Model
- Recommend "X"RA or INSCOM Units Establish MSSA

USASOC: CONCUR - Type Classified ARMY Standard
Retain Option - SOF Peculiar (Cost Effective/Responsive Analysis)

PEO-IEW:

LEFT SLIDE

OUTLINE

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IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

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LEFT SLIDE

KEY IMPLEMENTATION TASKS

	UPON APPROVAL
• DEVELOP COMPREHENSIVE IMPLEMENTATION PLAN	90 DAYS
• CONDUCT CONCEPT DEMONSTRATIONS	12 MONTHS
•• KOREA; 204th MI BN; 201st MI BN	
•• FT HOOD (SUBJECT TO ISM TEST DATE)	
• CONDUCT ANALYSIS OF TRANSITIONED NON-STD LOGISTICS SYSTEMS FOR INCLUSION/EXEMPTION TO ARMY STOCK FUND	6 MONTHS
• ESTABLISH TIME-PHASED PLAN FOR CONTRACT CONSOLIDATION	3 MONTHS
• CHARTER SCOPE OF FINANCIAL CONTROL WORKGROUP	90 DAYS

IEW SUSTAINMENT STREAMLINING STUDY
MACOM SENIORS PRE-BRIEF
21 SEPTEMBER 1992

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SUMMARY

- GIVEN DATA AVAILABLE TO STUDY TEAM
  - IEW UNIQUE
  - EVOLVING ARMY LEVEL LOGISTIC CONCEPTS
- RECOMMENDATION PROVIDED MEETS OBJECTIVES OF VCSA CHARTER
  - INTEGRATED SUPPORT MECHANISMS
  - FLEXIBILITY TO SUPPORT FORWARD NDI AND ADVANCED TECHNOLOGIES
  - CLEAR LINES OF RESPONSIBILITY TO THE SOLDIER
- ALIGNS IEW WITH EVOLVING ARMY SUSTAINMENT GOALS

CONCEPT POSITION PAPERS

The following position papers were provided in response to the IEW Sustainment Streamlining Concept Plan, 20 Aug 92 (Vol III, Part 5, Appendix AV) by USAIC&FH (representing TRADOC), INSCOM, USASOC, FORSCOM, and PEO-IEW. All objections presented in the papers have been resolved through incorporation into the study group recommendations, where appropriate.

DEPARTMENT OF THE ARMY
UNITED STATES ARMY INTELLIGENCE CENTER AND FORT HUACHUCA
FORT HUACHUCA, ARIZONA 85613-6000

REPLY TO
ATTENTION OF

ATSI-DC 18 September 1992

MEMORANDUM FOR Director, U.S. Army CECOM Intelligence Materiel Management Center, ATTN: SELIM-IEW, Vint Hill Farms Station, Warrenton, VA 22186

SUBJECT: Intelligence & Electronic Warfare (IEW) Sustainment Streamlining Concept Plan

1. The IEW Sustainment Streamlining Concept Plan has been reviewed by the CG, US Army Intelligence Center & Ft Huachuca. Based upon his review and internal staffing, we non-concur with the document. The document cannot be considered a concept in that is too vague and offers no alternatives. The "concept" does not address many critical issues; its solution (centralized control of dollars and spare components) is not adequately justified by the study.

2. The VCSA stated the objective of the analysis was to determine how to integrate and streamline battlefield sustainment of IEW operations on a dynamic and austere AirLand Battlefield, with particular focus on support to key, advanced technology NDI, and prototype systems. The concept plan fails to meet that objective.

a. The concept plan does not appear to be supported by any type of rigorous analysis The mandated system-by-system review does not appear to have been conducted. There is no identification of any Measures of Effectiveness to show battlefield efficiencies, how we get to that stage, and at what cost. There is no evidence of any simulation/modeling efforts done for present or future IEW systems.

b. The plan does not address in adequate detail how the escalated procurement of advanced technology NDI or prototype systems will be sustained.

c. It fails to deal with the underlying issue of shortage.

3. The CIMMC Project Design Document states the Army's overall goal for this project is to streamline the logistics support structure for IEW equipment, thereby increasing readiness and decreasing costs. Success in this area is questionable.

a. The improvement of unit readiness is not apparent as the two tier concept has not been shown in the concept plan to be more responsive to the MI Battalion. The "Fixed Forward Concept" is strongly supported. The "XRA" regional support has been shown for the CONUS based forces, but details are sketchy on support for OCONUS based units in peacetime or war.

b. One of the biggest drawbacks to the concept plan is the failure to show any cost economies. It is considered a good idea to place more centralized control over the administration of the various contracts. However, there is no evidence to show whether any cost or manpower savings will occur from consolidation.

4. The mandate for the study group was to provide a solid action plan, with feasible recommendations. The mandate was not met in that the concept plan needs more definition in several areas.

a. There are no clearly defined levels of maintenance; e.g., unit level - box replacement; DS - card replacement; GS/Depot - card repair.

b. The terms "sustainment" and "maintenance" are not clearly defined. No distinction is made between troubleshooting, repair, and provisioning, all of which are quite different activities.

c. Concept plan needs to be clarified that no revisions will be made to published doctrine, to include FM 34-1, Intelligence and Electronic Warfare Operations, until the IEW Sustainment Streamlining Concept is approved for Army-wide implementation.

d. A test control work group needs to be established to develop critical issues and criteria for the four regional support tests. Principal Study Group members would have participation on the work group to monitor the actual tests and participate in the review/approval process of any evaluation reports submitted.

e. Consideration must be made on the impact the approved concept will have upon acquisition process documents for existing and future IEW systems.

5. We have severe reservations about a concept plan that appears only to support pre-conceived notions, with no solid analytical underpinning.

ATSI-DC
SUBJECT: Intelligence & Electronic Warfare (IEW) Sustainment Streamlining Concept Plan

6. COL Pheneger, Cdr, USAISD, will be the senior TRADOC representative at the 21 September IPR. He has discussed the concept plan with MG Menoher and will be able to dircuss our concerns.

JOHN D. THOMAS, JR.
Colonel, MI
Deputy Commander

IALOG-R (700)

11 September 1992

MEMORANDUM FOR DIRECTOR, US. ARMY CECOM INTELLIGENCE MATERIEL MANAGEMENT CENTER, ATTN: SELEM-IEW, VINT HILL FARMS STATION, WARRENTON, VA 22186-5277

SUBJECT: Comments on the IEW Sustainment Study Paper and Briefing Slides.

1. The subject documents have been reviewed as requested. The following paragraphs contain comments on these documents and additional comments on the concept as it was discussed in meetings of the Working Group.

2. Our primary concern is resources. None of the documents contain a description of the process by which using units will pay for the services they receive from the XRA. We are concerned that, if transactions with the XRA are SFDLR transactions, the cost will be prohibitive due to the high unit cost of the reparables. Any INSCOM agreement on this concept will be contingent on the establishment of a funding process which makes the support received from the XRA more economical than that which is currently being provided.

3. The tasking for the study clearly limits its scope to sustainment of IEW systems deployed on the Air/Land Battlefield. This limitation is not clearly stated in either of the subject documents. It is essential that the limits of the study and its resulting implementation be clearly stated. INSCOM will not agree to any expansion beyond these limits without further study and negotiation.

4. Any implementation of the proposed concept must ensure that an acceptable level of support is provided at the lowest cost to the taxpayer. A process must be established to conduct periodic independent reviews of the support which is provided to ensure that this objective is being met. It is also essential that procedures be established to authorize deviation from the standard IEW sustainment process when warranted by special circumstances.

5. The study recommendations currently focus on support NDI items acquired by operating MACOMs and systems managed by CIMMC. It is essential that an IEW sustainment concept include all IEW systems regardless of their developer or wholesale logistics manager. Recommend that, if this concept is approved, item management of all systems, such as GUARDRAIL, which are managed by other organizations be transferred to CIMMC.

6. Current Army maintenance doctrine places emphasis on the "fix forward" concept. Any IEW sustainment concept must be consistent with this goal. This is particularly important if the cost of

INSCOM Ar 143

support from the XRA includes overhead cost in excess of actual repair costs. It is essential that using MACOMs have a larger input to ILS planning processes such as provisioning, documentation development and training to ensure that their interests are protected.

7. Much of the difficulty with support of IEW systems is due to the lack of ILS deliverables necessary for normal support by military personnel. This shortfall is usually caused by the perception on the part of developers that the necessary deliverables cannot be obtained within project funding limits. When deliverables are bought, they are not consistent with the actual support concepts or are not used. Recommend that a process similar to the NSA MEILSR process be developed to tailor the requirements for ILS deliverables to the actual needs of IEW systems. If this is done, the items which are needed can be acquired at an affordable cost.

8. Most of the analysis was derived from data gathered from FORSCOM units. Much of this information is applicable to INSCOM units as well but there are some differences. Aside from TROJAN SPIRIT which is a special case, the only contractor personnel which accompanied INSCOM units on ODS were with the TRACKFINDER and TENCAP systems. All other maintenance short of the depot level was accomplished by personnel organic to the 513th MI Brigade and its subordinate units.

9. INSCOM tactical units have an echelons above corps mission which requires them to deploy from one geographical area to another on short notice. INSCOM does not have organic supply support activities which deploy with our units as is the case with division and corps level IEW units. Our units receive their retail supply support from host the MACOM's supply support activities in the areas where they are deployed. The repair parts needed to support INSCOM units are not common to other Army equipment and are not stocked in most supply support activities. As a result, most repair parts requisitions must be passed to the wholesale level. When an INSCOM unit moves or when the unit providing supply support moves, the process for filling these requisitions is broken and urgently needed parts fail to reach the unit. The same problem will occur with requisitions for support from the XRA. This problem must be resolved before XRA support can be effectively implemented. One possible solution is to give the XRA which supports INSCOM EAC tactical units a mission supply support activity capability or for INSCOM to establish organic supply support activities.

10. The following comments apply to the briefing slides:

a. CWO Stewart is a CW3 not a CW4.

b. Add the following advantages to alternative 1

INSCOM Ap 2-4-3

(1) No SFDLR costs for repair transactions.

(2) No layered management costs for the Omnibus contract and its management

(3) Contractor personnel in the unit are available for operator training and assistance to unit maintenance personnel.

c. Add the following disadvantages to alternative 3

(1) Takes control away from a commander who has COR authority under alternative 1.

(2) A single contractor cannot always provide. the same quality of support as a OEM of firm which specializes in particular types of equipment

(3) Increased management costs due to larger management bureaucracy.

(4) Risk of mission disruption due to labor problems of contract expiration when all support is from one contractor.

11. Comments on the draft study report will be provided by separate correspondence.

MICHAEL L. WRIGHT
COL, GS
DCSLOG

INSCOM Ap 343

CONCEPT PLAN

FOR

UNITED STATES ARMY SPECIAL OPERATIONS COMMAND

IEW STREAMLINING STUDY

1. PURPOSE: The purpose of this concept plan is to articulate USASOC's position regarding the IEW streamlining study conducted by United States Army Communications-Electronics Command Intelligence Materiel Management Center (USACIMMC) at Vint Hill Farms, Warrenton, Virginia. This concept plan describes how we plan to obtain support for Army standard and SOF Peculiar IEW systems in the future.

2. GENERAL.

a. USASOC supports the repair of standard Army IEW equipment through AMC logistics systems and DESCOM depots currently used to sustain standard Army IEW equipment within USASOC.

b. Commander in Chief Special Operations Command (CINCSOC) is the Army Acquisition Agent (AAE) for development and acquisition of SOF peculiar IEW systems. The Special Operations Research, Development and Acquisition Center (SORDAC) pursues acquisitions (primarily NDI) in response to SOF peculiar IEW system requirements.

c. MFP11 dollars for this support is programmed through USSOCOM to sustain and maintain these systems. USASOC retains the option to use the Special Operations Forces Support Activity (SOFSA),(AMC) support activities or contract support. This ensures that economic analysis is considered in SOF Peculiar support decisions.

3. LIMITATIONS. The current concept proposed by CIMMC constrains USSOCOM and USASOC's ability to manage IEW programs. The proposed concept specifies AMC as the Army's executive agent for all IEW sustainment, including the administration of maintenance contracts. Information regarding economic analysis and resourcing of this concept has not been made available.

USASOC A 1 of 2

4. EXCEPTIONS. Some IEW systems are classified as SOF Peculiar and are sustained through contracts or have been selected for support through the Special Operations Forces Support Activity (SOFSA) at Lexington Bluegrass Army Depot (LBAD). Accordingly, SOF Peculiar systems must be exempt from the sustainment procedures as provided in the AMC/CIMMC IEW concept study. Current SOF peculiar IEW systems are listed below:

Special Operations Forces SIGINT Manpack System (SSMS)

Special Operations Command Research Analysis and Threat Evaluation System (SOCRATES)

FULCRUM

Tactical Light Tables

Interim Secondary Imagery Dissemination System (ISIDS)

Future systems

Special Operations Command Secondary Imagery Dissemination System (SOCSID)

Special Operations Forces Intelligence Vehicle (SOF IV)

5. CONCLUSION.

a. USASOC supports the AMC/CIMMC IEW sustainment concept for type classified Army systems.

b. USASOC will select support for SOF peculiar items based upon most cost effective and most responsive criteria.

FCJ4-DJ (SELIM-IEW/20 Aug 92) (700) 1st End
SUBJECT: September IPR and IEW Sustainment Concept Plan

Commander, Forces Command, Fort McPherson, GA 30330-6000

FOR Director, U.S. Army CECOM Intelligence Materiel Management Center Vint Hill Farms Station, ATTN: SELIM-IEW, Warrenton VA 22186-5277

1. We have reviewed the basic concept for sustainment of Intelligence and Electronic Warfare (IEW) equipment. We find that the concept parallels the Strategic Logistics Activity (SLA) Integrated Sustainment Maintenance (ISM) concept.

2. Concur with the basic concept. We strongly support its incorporation into the ISM test scheduled for FY 93 at Ft. Hood and the consolidation of all IEW sustainment contracts.

3. We appreciate the opportunity to participate in this worthwhile effort and look forward to implementation after the senior leadership approval of the test results and concept.

4. Mr. Serrentino, DSN 367-7284, can provide additional information.

Encl
nc

CHARLES D. BUSH
Colonel, USA
Acting Director, Logistics, J4

FORSCOM Pg 1 of 1

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DEPARTMENT OF THE ARMY
OFFICE OF THE
PROGRAM EXECUTIVE OFFICER
INTELLIGENCE AND ELECTRONIC WARFARE
VINT HILL FARMS STATION
WARRENTON, VIRGINIA 22186-5115

REPLY TO
ATTENTION OF
SFAE-IEW-SE

18 September 1992

MEMORANDUM FOR DIRECTOR, USACECOM, IMMC, VHFS, WARRENTON, VA 22186

SUBJECT: IEW Sustainment Concept Plan

1. Reference memorandum, SELIM-IEW, undated, Subject: September IPR and IEW Sustainment Plan.

2. The PEO IEW concurs with subject plan since it portrays an alternative that best delineates a course of action for improving sustainment of IEW weapon systems on the battlefield. However, there are some areas that warrant additional attention/emphasis. These areas are:

a. Funding - Budget or funding working groups must be established as soon as possible in order to determine how best to resource the initiation and total execution of this sustainment philosophy.

b. Software Support - Communication and coordination with the CECOM Software Engineering (CSE) Directorate is absolutely required. Software support for deployed systems is a very ill-defined discipline.

c. All IEW Materiel Developers must be provided the same flexibility regarding acquisition, fielding and sustainment regulations.

d. Recommend the use of the "PM" be more specific in application. As written there is heavy PEO IEW implication. I believe the PEO IEW PMs place great emphasis on structuring their acquisition according to regulation.

SFAE-IEW-SE
SUBJECT: IEW Sustainment Concept Plan

3. POC for this correspondence is Mr. Pete Hume, SFAE-IEW-SE, extension 5934.

FRANCIS J. SCHRENK
C, Systems Engineering Division

CF:
DPEO IEW
PM SW

Appendix AX

Froede, Alexander O., 25 April 1991, Lessons Learned in Southwest Asia [Memo]

SELIM-EOC 25 April 1991

MEMORANDUM FOR Chief, IMMC EOC

SUBJECT: Lessons Learned in Southwest Asia

1. SUBJECT: The Army supply system was unable to adequately support the Army in SWA.

DISCUSSION: The Army supply system (retail) was unable to provide adequate support to units deployed in SWA. Units experienced many difficulties in getting requisitions through the retail system and the supply system could not respond fast enough to high priority requisitions. Some of the problems that were experienced were:

a. Class IX shipped to home station instead of SWA because units failed to change unit ship to addresses prior to deploying.

b. Unit not assigned servicing SSAs until 3-4 weeks after being in country. This problem occurred most often in non-divisional and EAC units.

c. Assigned SSAs changing three or more times during the course of Desert Shield and Desert Storm without reconciliations being done prior to the change. No effort was made to transfer received parts between the former and the present SSAs.

d. SSAs under different automated requisitioning procedures (SAILS versus SARS-I Objective). This caused many problems in getting requisitions into the supply system, particularly when a SARS-I Objective SSA (Fort Bragg) serviced a SAILS unit (Fort Hood).

e. It took, on average, ten days for a supply requisition to reach the wholesale supply system from the MMCs. This fact, coupled with the slow transportation system, made it impossible for the normal supply system to be responsive to high priority requisitions.

f. Requisition reconciliations were not done between units, DMMCs, MMCs, and the TAMMC. Also, the unit document numbers on non ASL requisitions were not passed through the supply system. Usually the SSA or MMC would replace the unit document numbers with their own document numbers. These problems made it almost impossible to track the status of unit requisitions and made it impossible for NICPs to track who was requisitioning critical, low density, equipment and parts.

RECOMMENDATIONS: The problems described above underscore systemic problems of the Army supply system which was unable to adequately support the Army preparing for war. A detailed study needs to be done by supply experts to determine exactly what problems occurred and to recommend what changes that are needed.

2. SUBJECT: CECOM logistics assistance provided to units in SWA.

DISCUSSION: Throughout Operation Desert Shield and Desert Storm, CECOM-SWA, as part of AMC-SWA, provided supply and maintenance assistance to deployed units. The logistics assistance provided by AMC-SWA was a key factor in ARCENT being prepared to execute Operation Desert Storm. In fact, it was recognized by the

ARCENT Support Command that XVIII Corps was able to overcome significant maintenance and supply problems due to the ' jistics assistance provided by AMC. Push packages, call-in requisitions, and unit LAR support proved to be extremely valuable to the units that we supported.

RECOMMENDATION: CECOM and AMC continue to provide logistics assistance directly to the theater of operations and that LARs continue to deploy with units during hostilities.

3. SUBJECT: Not enough spare IEW LRUs available to support a wartime Army.

DISCUSSION: At the start of the ground phase of Operation Desert Storm the military intelligence units were in a precarious position. Although the readiness rates for IEW systems, on average, were about 90%, there was a shortage of available spare LRUs in SWA. The majority of LRUs that commonly failed in the IEW systems had zero balance on hand in the DS, GS, and contractor maintenance shops. The IEW maintenance system in SWA would have been unable to support an extended ground war. There were basically three problems that caused the shortage of spare LRUs in SWA. The first problem is that over the past few years very little money has been allocated for buying spare LRUs for B46 systems, hence there is a limited number of spare LRUs available. Due to the long resupply lines between CONUS and SWA, all available spare LRUs were prepositioned at the IEW Special Repair Activities in SWA during Operation Desert Shield so there were no spares available at the NICP. Second, due to the supply and transportation problems in SWA (already discussed in this paper) Mantech had a difficult time getting piece parts that they needed to repair the LRUs that they were capable of repairing in country. Throughout Operations Desert Shield and Desert Storm, Mantech had a large number of LRUs in their shops waiting for piece parts for repair. Usually the majority of these LRUs were due outs to units. The third problem was the slow turnaround time in getting LRUs back in theater that had to be shipped to a depot or OEM for repair. This long turn around time was caused by the slow transportation system between CONUS and SWA and by the slow repair time at the depots and OEMs for some critical LRUs (UGC-64 computers and 2143/2144 receivers).

RECOMMENDATIONS: CIMMC must be allocated the funds needed to buy a sufficient quantity of spares to adequately support fielded IEW systems. Also, CIMMC must make a concerted effort to insure that depots and OEMs are responsive to requirements for quick turnaround times on repairs.

4. SUBJECT: Life Support for CECOM personnel in SWA

DISCUSSION: The life support (housing, food, personnel equipment/uniforms and TA-50 replacement, administrative support, MWR support, telephones, vehicles, tents, cots, tent heaters, field showers and latrines, etc.) provided by AMC-SWA for MSC personnel was not adequate. Life support provided by AMC-SWA, in most cases was disorganized or nonexistent. CECOM and the other MSCs usually had to fend for themselves for life support requirements. In Dhahran, billeting space assignment was completely disorganized. AMC-SWA staff personnel and ARCENT Support Command pilots received preferential housing in the AMC compound. At KKMC all initial planning and coordination for life support requirements (tents, latrines, showers, rations) for the Foam Dome complex was done by CECOM and TMDE because the AMC-SWA staff made no provisions for setting up the facility. Vehicle and telephone support was provided or taken away at the whim of the AMC-SWA Commander. AMC-SWA was very slow in providing access for AMC-SWA personnel to ARCENT MWR facilities and activities. AMC-SWA made no provisions for providing local purchase items (tent heaters, tent lights, wash basins, etc.) that were not available from the supply system to the AMC-SWA community. In fact, for several months, the CECOM local purchasing officer was buying items for other AMC MSCs because AMC-SWA did not have a local purchasing officer. TA-50 and uniform support for EAC units was non-nonexistent. All uniforms and TA-50 supplies went to divisional or corps units. When replacement uniform were needed for CECOM soldiers, family members had to buy the uniforms and send them to the soldiers in SWA because Ft. Monmouth and VHFS CIFs did not have uniforms in stock.

RECOMMENDATIONS: As with any TOE unit, an admin/life support staff must be part of any CTA unit that deploys from home station. An HHC type staff must be part of the initial staff deployment of any future AMC/CECOM operation similar to Operation Desert Shield/Storm.

5. SUBJECT: Performance problems of IEW equipment.

DISCUSSION: A wealth of information should come out of Saudi Arabia on the operational and maintenance successes and failures of the IEW systems. Several reports have already been submitted (see IEW LAR Bruce Stees afteraction report of 10 April for some specific details). One of the primary concerns was the lack of experienced maintenance personnel for the M-1015 track vehicle, the magic mast assembly on the Trailblazer system, and the environmental protection unit on the Quickfix system. The primary maintenance problems for the big 6 IEW systems were the prime movers (especially the M-1015 track vehicle) and the power generator systems. It also became apparent that the Tacjam and Trailblazer systems are too heavy to be assigned to highly mobile units. The Armored Cavalry Regiments left their Tacjam systems with the rear units because the Tacjam was not mobile enough to kept up with a unit that is always on the move. For the Infantry and Armored divisions, the Tacjams and Trailblazers could not keep up with fast moving battle so they were not as effective as they could have been.

RECOMMENDATIONS: Detailed data collection and studies should be done on the performance and maintenance problems of the IEW systems deployed to SWA. This data should used to correct deficiencies on currently fielded systems and to help design the systems of the future.

6. SUBJECT: Preparation for deployment to SWA.

DISCUSSION: On Aug 15, 1990 the first team of IMMC personnel were notified that they would be going to SWA. The POR process went smoothly because the VHFS garrison had a set procedure in place. A procedure was not in place for getting TA-50 and CPE equipment for departing personnel (Aberdeen had not yet been set up). Very little assistance was provided by the HHC or IMMC in getting this equipment for deploying personnel. The deploying team had to make their own arrangements for this equipment by begging or borrowing it from the 201st MI BN and from Ft. Monmouth thus wasting valuable time that could have been used to make other preparations for deployment.

RECOMMENDATIONS: The HHC should develop an SOP that sets up a staff to assist assigned personnel when they are alerted to deploy to a field location. This SOP should should have procedures for PORing soldiers and for getting TA-50 and CPE equipment on short notice. Additionally, IMMC should assign a deployment sponsor for each individual/group that has been alerted for deployment to do the time consuming "running around" tasks required during deployment preparation.

7. SUBJECT: Fielding of New Equipment in SWA.

DISCUSSION: Generally, the worst time to field new equipment to a unit is during the time they are preparing to go to war. A new equipment fielding takes away extremely valuable time from the unit that they need to train and prepare their personnel and equipment for combat. The IEW Community fielded many systems during Operations Desert Shield and Desert Storm. Some of the fieldings were very successful (Sandcrab, AN/TLQ-17A (V3), and AEL version AN/MLQ-34) while others were not successful (TACJAM CPE, TIGER). The key differences between the successful and unsuccessful fieldings were the prior planning and coordination and the use of the TPF concept. The successful fieldings were carefully planned and coordinated with all concerned parties in CONUS and SWA. The fielding team was well trained, knew what they were doing, and all necessary equipment, tools, and spares were available. In addition, the unit operators and maintainers were well trained. The poorly fielded systems became a burden to the unit. The equipment usually broke more often because the operators were not completely trained and the unit (and sometimes the DS/DS maintenance shops) could not maintain the equipment do the lack of training, spare parts, and special tools and test equipment.

RECOMMENDATION: The best piece of equipment will become useless unless it is properly fielded to a unit. This is true in peace time and during war. We must resist the temptation to rush a "save the war" system to the field unless it is properly handed over to the unit and has the necessary support structure in place.

8. SUBJECT: Peace time maintenance structure of VII Corps could not support the Corps during war.

DISCUSSION: Recent reorganizations within the 2nd COSCOM of VII Corps and a heavy reliance in Germany on German maintenance personnel in Pirmasans and other locations to do DS and GS level maintenance had made 2nd COSCOM unable to perform many of its DS and GS maintenance missions when the COSCOM deployed to SWA. Some maintenance units had acted as an equipment pass through point in Germany and no longer had the test equipment, maintenance shelters, ASL, and training and experience necessary to perform their maintenance missions. Most of the LEMCOs and the IEW Maint Det of VII Corps were unable to perform their full maintenance missions due to these problems. Some of these same problems were found in III Corps and XVIII Corps maintenance units because local DOLs had taken over much of the DS/GS maintenance missions of the organic maintenance units. The SWA war has taught us that all CS and CSS units in the Army must be prepared to deploy anywhere in the world to perform their missions and that these units must stay trained and equipped to perform these missions.

RECOMMENDATIONS: The organic maintenance support structure of each Division and Corps must be used during peace time to insure that the maintenance units will be adequately trained and equipped to perform their wartime missions.

9. SUBJECT: The IEW Special Repair Activity support structure worked in SWA.

DISCUSSION: The IEW SRAs, where IMMC personnel, IEW maintenance contractor, IEW LARs, and the IEW GS Maintenance detachments were co-located provided outstanding support to the field. This structure provided a one stop shopping for the MI units when they needed supply and maintenance assistance. The IEW LAR provided interface between the MI unit and the maintenance contractor and the GS maintenance detachment while the IMMC personnel coordinated IEW support requirements with ARCENT, VII and XVIII Corps, AMC-SWA, IMMC and CECOM-SWA. Do to the quick set up of the Rainbow IEW SRA in late Aug 1990, each MI unit (except for the 313th MI BN, 82nd Airborne division) coming into Saudi Arabia was able to get their equipment completely checked out prior to deploying from the port. The success of the IEW SRAs can be clearly seen from the high readiness rates that each MI unit experienced soon after they arrived in country. These high readiness rates were maintained throughout Operations Desert Shield and Desert Storm.

RECOMMENDATION: The success of a close working relationship between IMMC, the IEW LARs, MANTECH, and the GS Maintenance detachments was clearly proven in SWA and must continue.

10. SUBJECT: The military transportation system could not provide adequate support to the field.

DISCUSSION: There were numerous problems with the military cargo transportation system that supported Operations Desert Shield/Storm. Some of the problems experienced CONUS were cargo placed in multipacks destined for the wrong SSA, mismarked and misrouted cargo, and high priority cargo waiting for several weeks to be shipped from New Cumberland Army Depot or at Dover AFB. One of the problems experienced in SWA was poor control of incoming cargo at the APOD that resulted in cargo being misplaced, stolen, picked up by the wrong unit, shipped to the wrong SSA, or receipted to individuals not on unit signature cards. Also, there were many problems with tracking cargo thru the transportation system. Cargo TCNs could be changed many times from point of origin to the ultimate addressee and the Air Force did a poor job of tracking TCNs and matching them with flight mission numbers. It was very difficult to tell if and when a particular TCN had arrived in country. Another problem that CECOM/IMMC had in SWA was the lack of available EAC transportation support to move cargo. It was usually impossible for CECOM to get any priority for transportation support from a transportation unit of the 22nd Support Command. The CECOM SRA eventually had to lease a panel truck for $3,200 per month while the IEW SRA would lease a 5 ton track/trailer on an as needed basis.

RECOMMENDATION: The ARMY must provide better training on APOD operations to their port transportation/supply personnel. Also, automated systems should be developed for tracking cargo through the transportation system and at APODs.

11. SUBJECT: Not enough IEW LARS available to support army at war.

DISCUSSION: In SWA the allocation concept for IEW LARS was two LARS per Corps and one LAR for all of the AE Bns in country. Initially, from the period of Sep to Dec 1990 this allocation was adequate, but when VII Corps and XVIII Corps deployed to their tactical assembly areas (TAA) and the 1st and 2nd MI AE Bns deployed during Jan 1991 it quickly became evident that this allocation was not adequate. By this time though, it was too late to get more IEW LARs in country.

RECOMMENDATION: The need for a dedicated IEW LAR with each division MI BN, Corps MI Bde, and MI AE BN was proved in SWA. In addition, due to the complexity of IEW equipment, IEW LARS must first be maintenance experts and then supply experts.

12. SUBJECT: Lack of M-1015 track vehicle and magic mast maintenance support in SWA.

DISCUSSION: The primary readiness problems for MI units in SWA were vehicle and generator systems on the M-1015 track vehicle. A shortage of trained maintenance personnel (in the divisions, corps and in TACOM) and spare parts were the primary problems with keeping this vehicle up and running. In early Jan 1991 assistance was requested from TACOM by CECOM IEW personnel to help solve M-1015 readiness problems. Local TACOM personnel were slow to provide assistance primarily because they did not have a LAR in country trained on M-1015 repair. It wasn't until a request for assistance reached TACOM headquarters in mid Feb that TACOM deployed their M-1015 expert to SWA. The lack of trained maintenance personnel caused some magic mast maintenance problems for deployed units. Very few MI Bns had 52D personnel trained on magic mast repair. Fortunately, there not many magic mast maintenance problems in SWA and those that did occur were not serious.

RECOMMENDATION: The maintenance problems with the M-1015 vehicle are well known and IEW system developers are already planning to use more reliable vehicles for future systems. The MACOMs (FORSCOM and USAREUR) must do a better job of insuring that personnel receive the critical specialized training that is needed to maintain the IEW systems. TACOM should insure that each division have a LAR assigned that is trained on M-1015 repair.

13. SUBJECT: NDI Systems in SWA.

DISCUSSION: Prior to and during Operation Desert Shield FORSCOM fielded several NDI systems to XVIII Corps and VII Corps. There were many support problems for these systems in SWA. Most of these systems were not ruggedized for military use in a desert environment and experienced high failure rates. Due to the quick fielding of most of the NDI systems, operators were inadequately trained which resulted in more maintenance problems than expected. Another problem was that FORSCOM never provided an adequate quantity of spare parts in SWA. In fact, on one of the NDI systems (Dragonfix), no spare LRUs were purchased for some of the system LRUs. The FORSCOM NDI systems were developed and fielded without the IEW readiness command's (CIMMC) involvement. FORSCOM was so protective of their NDI systems that they took steps to insure that IMMC personnel and the IEW maintenance contractor personnel in SWA were not involved, in anyway, with NDI system maintenance. This situation caused many delays in getting systems repaired because there were several cases where the GS Maint Detachment, who had the NDI system maintenance mission, was not available to repair a broken NDI system but the IEW maintenance contractor was. The IEW maintenance contractor was fully capable of repairing most of the NDI systems but FORSCOM would not provide spare parts and maintenance manuals and would not authorize the contractor to work on the NDI systems.

RECOMMENDATIONS: All systems fielded to Army units must be fully provisioned and trained. FORSCOM developed IEW systems are no different from other IEW systems and the IEW readiness command must be made part of the development, fielding, and support team.

14. SUBJECT: Logistics support for INSCOM tactical units.

DISCUSSION: The normal logistics support channel for INSCOM units is through the ACSLOG of Headquarters INSCOM. As was seen with the 201st MI Bn, this logistics support system will not work when a tactical INSCOM unit is deployed in a long term operational environment. When the 201st MI Bn arrived in Saudi Arabia they were unable to get adequate logistics support from INSCOM at Ft. Belvoir. Eventually the 201st MI Bn arranged for in country support from DS maintenance battalions and the Rainbow IEW SRA but there were some delays in getting this in country support structure put in place.

RECOMMENDATIONS: INSCOM tactical units should have the same logistics support system in during peace and war and this support system should be the same one used by any tactical military intelligence unit in the Army.

15. SUBJECT: MTOE of IEW GS Detachments.

DISCUSSION: Several problems with the MOTEs of the IEW GS maintenance detachments (158th from Ft. Bragg, 159th from Ft. Hood, and the 263rd from VII Corps in Germany) came to light during Operations Desert Shield/Storm. Two of the detachments (158th and 263rd) were not separate organizations but were sections of a Light Equipment Maintenance Company (LEMCO). In addition, these two detachments did not have their own organic tech supply section where the IEW spare parts are normally controlled from. (The 158th Maint Det. initially deployed as a separate detachment with its own tech supply section). The other detachment (159th) was a separate detachment with its own commander and tech supply section and was attached to a maintenance battalion for command and control purposes. The IEW maintenance detachments must be able to operate independently of any particular maintenance unit due to their unique EAC mission of providing limited DS through GS level maintenance for IEW systems anywhere throughout the theater of operations and thy need to be closely aligned with the IEW readiness command's (CIMMC) IEW maintenance contractor. It was proven in SWA that the IEW area support concept within ARCENT's theater of operations where the IEW maintenance detachments were deployed as separate detachments with their own tech supply capability was very successful. When the IEW maintenance detachments arrived in Saudi Arabia it quickly became apparent that their MTOE did not have sufficient support equipment authorized for the units to perform all of their maintenance missions. The units lacked the necessary number of maintenance vans, generators, test equipment, 5 ton tractors, contact team . vehicles, and people to perform all of the missions expected of them. Another MTOE problem is that even though all three detachments that deployed to SWA had the same missions, each unit was operating under different MTOEs.

RECOMMENDATIONS: Based on the lessons learned from SWA, a detailed study should be conducted on the MTOE of the IEW GS maintenance detachments so that it can be rewritten to reflect the equipment and personnel requirements needed to accomplish all assigned maintenance missions. In addition, the EAC mission of the detachments (as directed by DA and FORSCOM) should be recognized by the various Corps, where these detachments are attached for garrison command and control purposes, and the units aligned as separate detachments with their own tech supply capability.

16. SUBJECT: Different maintenance concepts in CONUS and USAREUR

DISCUSSION: CONUS and USAREUR based MI units use different maintenance concepts for their IEW equipment. In USAREUR, the direct support maintenance shop of the military intelligence battalion turns in a bad LRU to their maintenance support activity on a "turn-in and requisition" basis. The unit gets a turn-in document for the bad LRU and then requisitions a new LRU. The whole process is a supply transaction. In CONUS, the direct support maintenance shop of the military intelligence battalion turns in a bad LRU to their maintenance support activity on a "repair and return" basis. The unit usually uses a DA Form 2407 to job order the bad LRU into the maintenance activity and expects the maintenance activity to return the repaired LRU back to them or give them a replacement. In this case the process is a maintenance transaction. Problems occurred in SWA because CONUS units expected a "repair and return" maintenance policy while the USAREUR units expected a "turn-in and requisition" policy. Rainbow SRA I used a "repair and return" policy because the Mantech personnel at that site were primarily from Ft. Bragg. Additional problems occurred when Mantech would evacuate LRUs to VHFS for depot or OEM for repair on a "repair and return" basis. The NICP was expecting a "turn-in and requisition" policy to be used in SWA so they would return the LRUs to stock after repair so Mantech and the unit would never see the original or replacement LRU. To confuse matters more, Mantech did have a small number of LRUs sent back to them on a "repair and return" basis.

RECOMMENDATION: All IEW SRAs throughout the world should operate using the same maintenance policy. For GS maintenance, turn-in and requisition, where the maintenance activity repairs for the shelf, is generally the preferred method.

17. POC for this report is the undersigned at x5132.

18. CECOM BOTTOM LINE: The Soldier.

ALEXANDER O. FROEDE, III
MAJ,SC

Appendix AY

Wagner, Steven A., 22 April 91, Lessons Learned - Deployed Personnel [Memo]

22 April 91

SELIM-PO (690)

MEMORANDUM FOR Chief, Plans, Policy, Systems, and Budget, Ops Div, ATTN: Chief, EOC

SUBJECT: Lessons Learned - Deployed Personnel

1. The following is my input to the Desert Storm Lessons Learned for deployed military personnel:

a. Name: Wagner, Steven A. CPT/0-3E 51B

b. SWA Deployment: 27 January 1991 - 4 April 1991

c. SWA deployment mission: Site chief for SRA III and IMMC representative to the ARCENT G4 Maintenance Branch (IEW section).

2. System/Equipment Issues:

a. Fielding of NDI equipment during combat operations. Introduction of NDI IEW equipment into the area of operations during the initial phase of Desert Storm caused much concern at ARCENT HQs. The ARCENT had its mission cut out for them by just trying to re-align (task organize) the General Support units to support the standard theater IEW systems. New IEW equipment (NDI) must be fielded early enough into the field to allow the maintenance concept to be properly implemented into the theater. If the ground campaign lasted longer than it had, major logistical problems would of arisen causing low readiness rates for the NDI equipment.

3. Logistical Support:

a. Communications. Communications between the SRAs and CONUS were poor. Each SRA had its own different means of voice communication. SRA I - commercial phone, no TAC Line; SRA II - Tac Line, No commercial phone; SRA III - TAC Line, no commercial phone. SRA III relied on the ARCENT G4 commercial line for communications. However, obtaining an international dial tone was next to impossible during the east coast business hours. This problem was partially corrected when SRA III obtained the IMMC calling card account number. This allowed the use of the local Riyadh, Saudi Arabian dial tone which was more accessible during the peak calling hours. The fielding of the GOLDWING system greatly improved communications between the SRAs. But it will never cease to amaze me that during a war we still have to rely on the commercial telephone for communication support.

b. Equipment access. The purpose of SRA III was to provide over the shoulder technical maintenance support to Echelon above Corps (EOC) IEW equipment in theater.

Most of the support was designed to be provided by the MANTECH contractor personnel in the Riyadh area. In order to gain access to the IEW equipment, a special security clearance (above secret) was needed. All contractor personnel deployed to SRA III did possess the required clearance. This caused hardship on the EOC units that had to provided special escort. And many of the areas could not even be accessed by the contractor because of the sensitivity of the mission. Contractor personnel must possess the minimum security clearance required to access the supported equipment. If not the customer suffers. No matter what the intentions are of the support element - that element must satisfy the customers' needs to be fully successful.

c. Contractor intentions. It is my belief that MANTECH was not totally truthful in their dealings with our customer in the Riyadh area. During the month of March CECOM-SWA determined based on facts which were gathered in theater that the SRA III mission requirement would be reduced by the end of March 1991. Plans were made by the CECOM Senior Command Representative (CECOM-SCR) to close SRA III and transfer its support mission to SRA I. As site chief I attempted to communicate these plans to the Riyadh customer ensuring that support would still be available. To my amazement I discovered that the MANTECH SRA III site manager was briefing the Riyadh customer that if SRA III closes then all support would disappear. I believe that MANTECH used this tactic to frighten the customer into a panic causing the customer to request through the Director, IMMC to keep SRA III open. Whether the SRA III site manager received guidance from MANTECH corporate to use this tactic or not has not been proven to my complete satisfaction. However I suspect that it might have. When Mr. Dan Sears was in country during the mid part of March, he seemed to be on a commercial venture advertising his company's capabilities. MANTECH failed to realize that IMMC was their primary customer and not the field. As the ACOR for SRA III I will dictate (with permission from VHFS) on the mission. But every time I tried to lay out a plan for closure I was being impeded by MANTECH. It seemed that no matter what my guidance to MANTECH was it was being challenged by MANTECH corporate. Unacceptable!

4. Deployment of military personnel:

a. VHFS CIF. No problem. I received professional service and received all TA-50 required for deployment.

b. Aberdeen Proving Ground MD. Here I also received professional service and received all chemical gear required for deployment.

SELIM-PO
SUBJECT: Lessons Learned

c. HQs Co., VHFS. Two problems.

1). Deployment of IMA personnel. IMA personnel are not in position to be deployed on a moments notice. The IMA program is designed to supplement the active duty force that has been deployed to a combat theater. If operational issues dictate that requires an IMA soldier to be deployed, an extra two weeks are needed to get the IMA soldier in a deployable status. Most IMA soldiers do not have active medical files. All medical files are kept at St Louis, MO. and must be locally constructed requiring extra processing time. Also other personal actions, i.e. wills, emergency data forms, Powers of Attorney, etc., take time to process. IMA soldiers should be notified of impending overseas movement as soon as operationally possible. Do not wait to the last possible minute.

2). Personal Weapon. HQ VHFS is not equipped to provide personal weapons to IMA soldiers being deployed. I had to personally work the issue with the VHFS DOL to obtain a .45 cal pistol. Only by their good graces was this possible. HQ Co. VHFS must take positive aggressive actions to ensure that a soldier is properly equipped before movement into a combat zone. I should not have to procure a weapon through the supply system - the HQs Co. should.

5. POC for this memorandum is the undersigned, SELIM-PO, extension 5077.

STEVEN A. WAGNER
CPT, AD
IMMC EOC

Appendix AZ

Pellissier, Stephen V., 12 June 1991, Lessons Learned - DESERT SHIELD/STORM [Memo]

SELIM-EOC 12 June 1991

MEMORANDUM FOR Director, IMMC

SUBJECT: Lessons Learned - DESERT SHIELD/STORM

1. Per memorandum SELIM-PO, Subject: Lessons Learned - Deployed Personnel, the following is submitted:

a. Stephen Vincent Pellissier, 1LT/O2, Branch: Signal

b. Period of deployment: 1 Jan 91 to 22 May 91.

c. Description of duties: Initially, site chief for the IEW SRA II at KKMC and ACOR for the $3 million Mantech contract. Later assumed responsibility for all IEW SRAs in SWA.

2. SYSTEMS/EQUIPMENT ISSUES:

a. Reliability - All systems and equipment were reliable with the exceptions of the M1015 Cargo Carrier for the AN/MLQ-34 and the Shelter Mounted Unit for the AN/TRQ-32.

b. Performance - Overall, the performance of individual IEW systems electronic components was excellent. Many failures encountered in this theater were a result of problems normally unreported; but since the units were going to war, all problems surfaced with urgency. Other significant reasons for equipment failure and persistently deadline systems stemmed from:

1) A lack of trained/knowledge maintenance personnel. Not every 33T can (or should be expected to be able to) repair every piece of IEW equipment. Further, these same 33s were also constantly assigned additional tasks (guard duty, patrols, etc.) which, as a result, detracted from maintenance time and/or sleep. This training/knowledge problem is also evident in the maintenance battalions where the M1015s are repaired. In an arena where tanks and Bradley fighting vehicles are the priority for repair, M1015s often have the lower priority for both parts and mechanics. (A monumental reason for getting a more common carrier for IEW systems!)

2) A lack of LRUs and piece parts for repair. IEW LRUs have always been in low density - which makes repair difficult during peace and even worse during war. We are extremely fortunate that in this war the enemy lacked intelligence capabilities and we controlled the battle. Had this been a prolonged battle, our IEW spares would have been depleted in a short time, which would have severely crippled our intelligence gaining capabilities. Another indirect problem with spares is that aviation units lacked the ground transportation vehicles to carry their spares.

3) Most MI BNs were tasked (in training and war) to keep up with the faster moving tanks and Bradleys. In the desert terrain, most vehicles can move quickly, but still cannot keep the tanks.

c. The outstanding/noteworthy/performance issues are as follows:

System: Tacjam, Trailblazer, Teampack (H)
LRU: M1015 Cargo Carrier
Problem: Transmission and engine. Problems stem from the lack of trained maintenance personnel, the priority for repair and parts, and the MI Bns not coordinating with their support maintenance battalions.

System: Tacjam
LRU: M1015 Cargo Carrier, Generator
Problem: With the 60 KW generator, the primary problem is the PRU which requires alignment to compensate for the load applied. Again, problems stem from the lack of trained maintenance personnel, the priority for repair and parts. There is a new solid state switch for the generator which is reportedly successful (ref. SFC Miller, TACOM M1015 expert).

System: Tacjam, Trailblazer
LRU: R2144 receiver
Problem: The theater is basically zero balanced for these receivers. Luckily, each Tacjam has one "extra" in the system. A possible cause of the high failures could be because these receivers are swapped while power is still applied to the system. Apparently, the Navy is the PICA, and B46 is unauthorized to send them directly to the manufacturer for repair. This should be changed to support the units.

System: Trailblazer, Teammate
LRU: R2143 receiver
Problem: Again, the theater is basically zero balanced for these receivers. A possible cause of the high failures could be because these receivers are swapped while power is still applied to the system. Apparently, the Navy is the PICA, and B46 is unauthorized to send them directly to the manufacturer for repair. This should be changed to support the units.

System: Teammate
LRU: Shelter Mounted Unit
Problem: The primary problem seems to be in the voltage regulator which burns out at a high rate.

System: MSQ-103
LRU: Video Display Unit (VDU)
Problem: Historically high failure, but repairable at the GS level.

System: MSQ-103
LRU: Mast Head Switch

Problem: Zero balance in theater.

System: TRQ-32
LRU: HGAC Control Panel
Problem: Chip U2 on the control card.

System: Quickfix
LRU: Dipole Antennas
Problem: Breakage primarily due to hard landings.

System: TLQ-17A
LRU: Power amps
Problem: High VSWR caused by an impedance mismatch when operators use the whip antenna instead of the LPA. This burns out the transistors in the power amps.

System: TLQ-17A and TRQ-32
LRU: Air conditioner
Problem: The heat encountered during the summer caused the operators to run the air conditioners for up to twenty minutes before the mission equipment could be powered up.

System: TRQ-32
LRU: Dipole Antenna Elements
Problems: The five (5) pronged connector on these elements must be redesigned. The metal is brittle, and the connector is cumbersome.

General Comment: It should also be noted that more emphasis should be place on designing IEW systems to operate in the HF range. As shown in this theater, HF a primary range in the EM spectrum for DF, collection, and jamming. Luckily, there was time and funds to react and modify some systems (i.e. SANDCRAB, the Eyering Antennas, etc.).

3. LESSONS LEARNED

a. CONTRACTOR SUPPORT

DISCUSSION: During OPERATIONS DESERT SHIELD and DESERT STORM, CIMMC depended heavily upon contractor support.

PROS

-The contractors got the job done. Given the field conditions, the lack of available parts, and the urgency to repair equipment, they accomplished the overall mission.

-I had few complaints/problems while under attack. During the months of Jan and Feb, we had numerous SCUD attacks at all hours of the day. All this time, morale remained high.

-They were good workers, willing to do additional duties on the compound as necessary (ie forklift, latrine detail, power generation, etc.). Most of them were prior 33Ts (E1 to E4) so they understood military situations and had prior training. We were very fortunate to have a good group of guys.

-They required minimal supervision for normal activities. It was a credit to the site managers and management supervisors that there was no need for me to monitor the day to day operation of the SRAs.

CONS

-Most of them were not qualified to be senior technicians, even though that was the position they held. Some of the contractors that actually were qualified senior technicians resented the fact that Mantech had hired personnel which were less than qualified. (This bothered the senior technicians because it deflated their status.) Anyway, I feel it was incorrect for Mantech to hire unqualified personnel.

-The cost for ICS was much more than the quality of work. From the discussion above, for example, Mantech charged the Government for senior technicians, yet that is not what the Government received.

-The contractors were not trained in using the Army System to accomplish tasks (i.e. movement and lift of equipment, requisitions). Too often the contractors relied solely upon subcontracting and local purchase to accomplish tasks that could be coordinated by using the system.

-Contracts are not flexible enough to provide optimal support in a fluid environment. It took entirely too long to modify the Delivery Orders, get it through legal, negotiated, and awarded to provide prompt support. Additionally, there were times when I needed the contractors to change focus as the situation changed, but it often took coordination all the way back to VHFS. Case in point, when KKMC became the center of gravity in the KTO, I needed more support at SRA II. If I had a team of NCOs instead of contractors, I could have simply told then to come up; however, with the contractors, I had to get approval from CONUS first.

-Civilians do not belong in a combat environment. 1) They become a liability for which soldiers must provide protection, food, lodging, training, etc. 2) Being outside the military, they are not bound by Army regulations and, therefore, are not required to follow orders. 3) The civilians themselves are at risk because, being noncombatants, they cannot protect themselves. 4) The contractors' insurance (health and life) hindered their effectiveness since it did not cover them in Iraq and Kuwait (initially anyway). As such, I could not require the contractors to go on contact missions in Iraq and Kuwait (luckily, some of them volunteered).

BOTTOM LINE: There was nothing the contractors did to support the MI units that a similarly equipped team of NCOs (EG from NETT) could not accomplish for much less hassle, time, and money.

LESSON LEARNED: Contractor support is like the welfare program: Initially, it was needed to supplement green suit support or to support a newly fielded system. However, as time has passed, we (and the unit commanders) have come to depend exclusively on contractors for support. We write statements of work that demand highly professional work, pour millions of dollars into contracts, and end up having ex-military technicians so the same work that soldiers can do. In the end, only the corporation (management level contractors) wins.

SOLUTION: Effectively utilize contract support by using them only when necessary (ie during fielding of new systems or when the expertise does not exist in the military). At the same time, force the military technicians to do their job without the crutch of having contractors to back them up.

b. Military Technicians (33 MOS)

DISCUSSION: In the past few years, the standards for becoming a 33T (Electronics Technician) have been lowered, thereby allowing more people in the field to fill slots.

PROS

-There is no critical shortage in the MOS
-More minorities are in the field

CONS

-Soldiers entering the field are not truly qualified. At school they are not provided adequate education.
-Soldiers have come to depend upon contractor support.

LESSON LEARNED/SOLUTION: Provide adequate training to soldiers and force them to utilize their capabilities to do their job.

c. FIELDINGS

DISCUSSION: Program managers for all systems saw DESERT SHIELD as a perfect opportunity to field new system upgrades using DESERT SHIELD/STORM funding. Unfortunately, the units were busy trying to get the equipment already on hand ready to go to war.

PROS

-System upgrades which were previously unavailable due to lack of funding could be fielded.
-Units received much needed upgrades.
-Some fieldings worked out great. For example the Sandcrab was a definite combat multiplier for the coalition forces and the TROJAN fielding provided excellent COMMS worldwide.

CONS

-Units did not have the time to stop training for fieldings
-Some fieldings were incomplete; often the fielding lacked spares. Case in point, the chemical protective equipment (CPE) for TACJAMS: The fielding team went to the 101 MI DET; They pulled LRUs out of the systems (and left them in the sand and rain); damaged the connectors; drilled holes in the shelter to mount the CPE (but didn't mount the equipment); then realized that they did not have the complete MWO Kit - they left the unit in that state. Later, they returned and mounted the equipment they had, but it was still incomplete. The unit had almost two weeks of down system

time because of this fielding. When the word got out to the other units, they didn't want the CPE.

-Maintenance personnel often did not receive adequate training to maintain the upgrades.

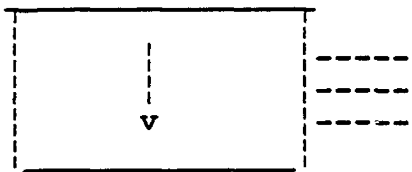
LESSONS LEARNED/SOLUTION: Wartime is a bad time to field new equipment. Program managers must commit money for new fieldings during peacetime so they are not playing catch up at the eleventh hour.

d. TEST PROGRAM SETS

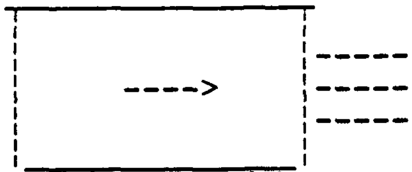
DISCUSSION: IMMC fielded IEW TPSs to the EQUATE units in SWA. Unfortunately, the timing was bad. The units received little training and many of the TPSs were incomplete. Rather than giving my impression of TPSs, I took the following notes from the NCOICs of the 150th and the 153rd EQUATE Dets:

-The TPSs in the MSM-105 work for other systems (Firefinder, UGC-74), but not for the IEW systems.

-The plug-in modules have a design flaw: they slide down (against the contacts) rather than in the direction of the contacts as shown below:



as it is



as it should be

-The TPSs need to be physically designed to fit the MSM-105 system. For example, cables and probes sometimes did not reach the connector ends. The confined space within the maintenance van also needs to be a consideration.

-The software is inflexible: 1) The operators were unable to restart a segment of the TPS; instead, the entire module had to be restarted. 2) There needs to be more entry points, and the locations of the entry points need to be listed at the top of the program. 3) When a box is repaired the operator should not have to restart for initial verification.

-There was no access to compiler. Some MSM-105s had compilers loaded, but the soldiers did not have the passwords.

-The software sometimes told the operator to "wait". Instead, it should display how long the operator has to wait and what the program is doing. As it is, the operator has no idea if the system has crashed.

-The TPSs lacked flexible specifications (ranges of tolerance) for compatibility with hot mock-ups. Also, sometimes when the voltages were shown to be in acceptable range the TPS failed.

-TPSs were incomplete, lacking extender cards, power supplies, card pullers, and cables.

-Manuals and software misidentified parts (ie software called for a -1 part while only -2 parts were in the boxes). While this is not a major problem, it adds to the overall confusion in running TPSs.

-To effectively operate the MSM-105 operators need level 40 manuals, and for trouble shooting, level 20 manuals are needed for each system.

-TPSs need to keep up with the design changes made on systems. For example, the differences between the GTE and AEL TACJAMs are not compensated for in the TPSs.

-If EQUATE detachments are required to support IEW equipment, they need the EAPSL and the authority to requisition repair parts.

LESSONS LEARNED: TPS packages need to be thoroughly verified and validated prior to fielding. The time required to run a TPS and the restrictions of the software do not lend themselves for use as a tool for repair nor do they operate effectively in a battle environment. Moreover, if the money that has been spent on TPSs for the past ten years had been spent on spares, there would have been no shortages on spares and repair parts in SWA.

SOLUTIONS: From an engineering aspect, the concept of TPSs is a great idea. The capability of feeding input signals and monitoring the outputs of electronic devices is a powerful troubleshooting tool. However, due to the complexity of TPSs, the skill required to operate them, and the knowledge of electronics required to interpret the output, it is inherent that people will be slow to accept them. Therefore, this Center MUST insure that a complete, fully tested product is fielded and that there is ample time to train the units on their operation.

e. SUPPLY:

DISCUSSION: The CECOM community as a whole in SWA spent an inordinate amount of time assisting the units in expediting NMCS requisitions and developing push packages to ensure continuing support with respect to maintenance requirements. By assisting the many units in Saudi Arabia, CECOM-SWA became the resident experts on the in country supply system and spent many hours at the numerous APODs and supply support activities identifying for the support personnel the correct customer.

One thing that needs to be expressed is the impression the units have developed towards the NICPs. I noticed it in SWA, but it probably holds worldwide. No matter how many push packages were sent or requisitions were filled, the MI units in SWA never felt comfortable with the number of spares they had at any given time. They always felt the item managers were holding back LRUs, rather than filling requisitions (this comes, in part, from the numerous cancellations of requisitions). As a result, units developed a sense of animosity and mistrust towards the NICP and the item managers. Unfortunately, I'm sure the item managers did everything they could to release as much stock as possible to the units. The lack of IEW LRUs in SWA could not be pinpointed to one reason; instead, it was due to a number of reasons, some of which are shown below:

- There is a low density of LRUs in stock. Thus, if some of these LRUs are in the supply pipeline, a shortage is seen by both the item managers and the customer units.

- The MI systems were heavily utilized. Leading up to Desert Storm the MI units were training with the armor units just as they planned to go into battle. Thus, the units were in a situation where they were not cheating on their readiness reports as done on ARTEPs. Additionally, training as they were, the units were pushing the carriers to their limits in trying to keep up with the faster moving tanks and BFVs.

- Problems with turning around equipment sent back to the NICP. For example, the R2142 and R2144 Receivers were in extremely short supply: Mantech had returned over 50 to the NICP, the units had no spares, and were starting to canabalize systems to gain stock of the receivers.

- Frustrated Cargo. A lot of equipment shipped to SWA never reached its destination. Units were moving so often that they were unable to wait for equipment. Thus, the yards in Dhahran, and even KKMC, filled with acres of frustrated cargo. Additionally, the tech supplies to which most of the SRAs' and GS Dets' equipment was sent would have "moonlight specials" prior to relocating. Thus, if you weren't keeping a constant watch of their incoming shipments, you may miss out.

LESSON LEARNED/SOLUTION: The item managers need to win back the trust of the units. The units need to feel that the item managers are acting in their best interests. The best way to do this would be to send the item managers on TDY to visit the units and gain an appreciation of what the units mission is and how they go about accomplishing it. Additionally, adequate spares must be purchased with the systems up front so they're available when needed.

f. DEPLOYMENT OF A TDA ORGANIZATION:

DISCUSSION:

Personnel - There was no guidance for processing for deployment except in fragmented bits and pieces. Moreover, the garrison was incapable of processing personnel: CIF did not have adequate stocks of TA-50 (to include protective masks and MOPP gear!), the arms room did not have ammunition, the health center did not have serum for shots. Luckily, the 201 MI BN issued me TA-50; otherwise, I could not have deployed.

Communications - Communications with the units was difficult at best. The TO&E units in SWA were normally equipped with the AN/VRC-12 series FM radio. The IEW SRAs, and all of AMC for that matter, did not have these radios, and relied on other means of communications. While the units were stationary, the tactical field phones provided by the Signal Battalions were about 60% reliable, but the only reliable way to contact the units was to drive out and meet them face to face.

Until the CECOM-SWA received the Goldwings, communications among the SRAs was also unreliable and difficult. Prior to this, SRA I had only commercial access, SRA II had only tac phone access (with limited cellular phone access), and SRA III had commercial and tac access. Thus, the Goldwings were a definite success for communications among the SRAs.

LESSON LEARNED/SOLUTION: TDA organizations should not deploy personnel to hostile areas unless they are willing to insure the individuals are properly outfitted for survival. This should be the organization's responsibility, not the individual's.

RECOMMENDATION: It may be possible, considering the distance HF signals propagate, to establish a Goldwing network among the IMMC readiness office and the SRAs currently in operation. Then, if the situation arises again where an SRA needs to be established in a remote area, communications between it and IMMC could be made via Goldwing.

4. POC for this action is the undersigned.

5. CECOM Bottom Line: THE SOLDIER.

Stephen Pellissier

STEPHEN V. PELLISSIER
1LT, SC
OIC, EOC

Appendix BA

Bender, Robert E., 19 April 1991, Lessons Learned - Deployed Personnel [Memo]

19 APR 1991

SELIM-S (SELIM-PO/Undated) (690) MSG Bender/de/5121
SUBJECT: Lessons Learned - Deployed Personnel

Director, Strategic Systems, ATTN: MSG Bender

FOR Chief, Plans, Policy, Systems, and Budget, Ops Div, ATTN: Chief, EOC

1. The following information is provided regarding my deployment to SWA in support of Operation Desert Shield/Desert Storm as well as my tour in the Emergency Operation Center (EOC) at USACIMMC after my return from SWA.

a. Name: BENDER, ROBERT E. MSG/E-8 33Z5M

b. SWA Deployment: 2 Sep 90 - 26 Nov 90
EOC: 15 Jan 91 - 24 Mar 91

c. SWA Deployment: Initial NCOIC of SRA I. The purpose of my trip was to help set up SRA I, make unit contact, and ensure full operational support from the SRA to all in-theater supported MI units.

d. Systems/Equipment Issues:

(1) Reliability - I feel the electronics of the big six IEW systems held up better than anyone could ever imagine. The hardware itself, operating under extreme heat conditions, the massive movement both from CONUS to SWA as well as movement throughout the desert, caused few problems for the technicians. This, however, was not true for the prime movers of these systems. Major vehicle problems and generator problems (caused by the sand and terrain) resulted for the highest percentage of down time on the IEW systems. It appeared to me that in the early stages of deployment that very little communication between command elements (TACOM, AMCCOM, CECOM, MICOM, etc.) existed which resulted in very poor support for the vehicles and system generators. This rapidly improved over time.

(2) Logistics Support - As far as the end item part availability for the big six IEW systems, I feel we were well stocked in LRUs after the initial push packets were shipped to the SRA. The communications between CONUS and the SRA were good through Mantech; better after the SRA got their own telephone line and much better once the STU was keyed and the FAX machine arrived. The in-theater communications was a disaster. Initially, the only means of communications between the SRA and supported units was actual visits to the units by the SRA team or to the SRA by the units. This made for a very trying, hit or miss environment. As we traveled to a unit with repaired LRUs, we did not know if they had any other defective equipment until we arrived at their site. With advance notice, we could have brought needed LRUs to them. This was fixed when the SRAs received the GOLDWING system to communicate from one SRA to another, as well as to the units, as they already had GOLDWING systems.

Transportation initially was the least of our problems as most of the units were staged close to the SRA. After more units began arriving, and they were placed throughout the desert, transportation started becoming a problem because as the units began setting up in operational areas with their equipment, security tightened. Contract personnel required military escorts initially to enter these sites. A local policy requiring two personnel in every vehicle (especially at night) really caused transportation problems as we were able to visit only half the units in a given period of time when required to double up. As the units moved further into desert areas, the requirement for four-wheel drive vehicles came. These vehicles were very expensive and also hard to find on the economy. As far as other logistical areas, better coordination between Logistic Assistance Representatives (LARs) and the units would have helped. Some units deployed to SWA without any structured vehicle/power repair support as in CONUS environments, these repairs were done by the installation DOLs. However, the DOLs did not deploy to SWA, causing the military repair chain of command to figure out who did what for whom - representatives from some activities, i.e., TACOM, CECOM, AUSCOM, etc. - did not understand true responsibilities in support of IEW systems, specifically the vehicles and generators. Often times they addressed the entire system as an IEW system, including the vehicle and generators. This created allot of trouble initially as most system failures were due to vehicle/generator problems.

(3) Processes - The preparation for deployment seemed totally uncontrolled initially. Without having a firm concept of what needed to be done, little planning for a team to deploy could be done. Support agencies on post (TAG, MEDDAC, PSC, HQ Co) seemed eager and well prepared to support our soldiers for deployment. Training on NBC and weapons was provided to the initial deployment team by HQ Co. Personnel identified for initial deployment were qualified, processed, and equipped to depart. However, this took quite a bit of coordination with DOL, CIF (both VHFS and CECOM), and HQ Co. In being a TDA organization, the authorization for required equipment did not exist. However, after the initial team deployed, and problem areas were addressed, I feel that action to improve these deficiencies could have been better. It seemed as time went on and new procedures were established for deployment (Aberdeen), things got worse instead of better. Weapon support and NBC support were very poor and needs to be looked at hard for future possible deployments. Also, a regular program of pre-qualification and readiness of deployable personnel (correct MOS, grade, physical profile, extreme family problems/ circumstances) should be evaluated and updated on a continuous basis. Using the correct soldier to accomplish mission may mean degrading a function of a specific directorate at the time, but we must qualify and train personnel to assume these duties in the absence of that particular soldier/civilian. Although the workload and mission requirements centered on SWA during the recent months, the mission support for other agencies/missions continued by USACIMMC.

(4) EOC - The EOC was a great concept and accomplished more than one can imagine. However, it appeared from SWA that it was hard to figure out who was in charge. Many times when questions/taskings were sent out from the SRA, it took forever to get an answer or instead of getting an answer, you got more questions. This improved through time but still seemed frustrating. In working in the EOC, it sometimes seemed that a priority system would have helped solve some issues. Some taskings seemed to stay on the open action log for quite sometime without any response. Although some issues probably seemed unimportant or minor to some people, I'm sure it was important to the person generating the request. I just feel that those who served there, especially during Desert Storm, were deserving of our total attention and interest but it seemed that the longer we were there, the less the interest back here seemed. Maybe that was human nature, but could we have done better?

2. POC for this action is the undersigned, SELIM-S, extension 5121.

3. CECOM Bottom Line: THE SOLDIER.

Robert E. Bender

ROBERT E. BENDER
MSG, NCOIC
Strategic System Directorate

Appendix BB

Stalford, Michael T., undated, Lessons learned - Deployed Personnel [Memo]

SELIM-PO (690)

SUBJECT: Lessons learned - Deployed Personnel

1. The following information is provided regarding my deployment to SWA in support of Operation Desert Shield/Desert Storm.

a. Name: STALFORD, MICHAEL T. SSG/E-633T30

b. SWA Deployment: 20 Oct 90
20 Nov 90

16 Feb 91
13 May 91

c. Purpose of trip ending 20 Nov 90: The goal was to field the TSQ-138 to the 124th MI BN. This unit received only a partial NET before they deployed.

d. Purpose of trip ending 13 may 91: NCOIC for SRA II, provided technical support for all of theater, worked supply issues for units.

2. Systems/Equipment Issues

a. Reliability - Given the extreme weather conditions for SWA, temperatures ranging between 50-130 degrees fahrenheit/sand storms, the equipment within the realm of the big six IEW systems performed far better than expected.

b. Performance - All of the big six accomplished their individual missions. However, certain types of equipment were more valuable than others. The TSQ-138 and the TRQ-32 had great collection missions, but since the Iraqi army prefers using HF over VHF our DF capabilities with these systems were limited. The M1015's were the biggest downfall for the entire big six. They were constantly in need of maintenance and the on board 60KW generator was inoperable approximately 50% of the time. Units with the TSQ-138 had problems maintaining convoy speeds because of the combined weight of the M1015, the electronics shelter and the TSU-138 (Trailer Support Unit). The average maximum speed of the system was about 20-25 MPH. Some units even went so far as to send the TSQ-138's in separate convoys because they couldn't keep up. The Air-conditioning within the TSQ-138 worked extremely well. This was due to the low humidity. Even though it was 130 degrees the A/C did not fail.

c. Problem areas - One problem area is the vulnerability of the air-conditioning within the TSQ-138 and MLQ-34. On both of these systems, the A/C is mounted outside of the shelter, and therefore, susceptible to small arms. During the battle the FLOT was moving so fast that sometimes the IEW assets were closer to the front line then they should have been. The 533rd had a MLQ-34 that took an AK-47 round in the A/C; the round punctured the freon line. This disabled the A/C and in turn also disabled the whole system. The freon lines are made of a metal tubing and have to be brazed, not welded, to be fixed. Not all units have this capability. Also, it takes a small crane and approximately 3 personnel to remove an A/C from either a TSQ-138 or a MLQ-34.

2. Logistics Support

a. Parts availability - One concern is the availability of the UYK-64 computer and the UYK-10 expansion chassis. That was a high failure item and there were some systems down waiting for UYK-64's and UYK-10's.

b. Delivery time - One of the biggest problems during the war was the amount of time it took parts to get to the units once they were ordered. The IEW DET's were constantly moving and did not always use the same supply companies. The 158th for example had parts ordered under 6 different DODAAC's. Once these parts came into country there was no saying how long it would take those parts to get the units. The parts would just sit in a supply company's yard until someone to and get them or they were handed out on a first come first serve basis (That really did happen). We had MANTECH personnel searching the yards daily. We did find some shipments, but there were still a lot of shipments that were not found even after the war.

c. Maintenance flow (units and DET's) - Another major problem concerning logistics support was the amount of distance between the units and the DET's. When the war broke out, some of the MI units missions took them more than 10 hours driving distance form their supporting DET's. The lines of IEW support were not in place. We are very lucky that the ground war did not last any significant amount of time.

d. Technical assistance to DET's and units - The contractors from MANTECH initially were not allowed to enter Iraq or Kuwait. If they were to enter one of those countries and get killed, the company's life insurance policy would not cover them.

e. Mobility of SRA II - The SRA II should have been more mobile than it was. Granted, it was nice where we were at KKMC. But, the mission always comes first. Listed below are some of the reason why SRA II was not mobile:

- No trucks to move their vans
- No support vehicles (HMMWV's) - Contractors had rented vehicles
- Life Insurance policy - Contractors
- Willingness to go - Only a few contractors would have gone north if told to do so
- Per Diem - Contractors
- Production control Maintained inside the foam dome
- LRU's awaiting pickup and awaiting maintenance located inside the foam dome

f. Communications - This was major problem during operation desert shield/desert storm. Problem areas included communications between:

- o SRA II (KKMC) and SRA I (Dhahran)
- o SRA II and VHFS
- o SRA II and SRA III (Riyadh)
- o SRA II and supported units
- o SRA I and supported units

g. Transportation - Problems were encountered when trying to find the unit in the middle of the desert. We were issued two LAN's (Global Positioning System), but the specifications of the equipment matched those of being in a boat. The LAN was not to be kept in a hot location, or be subject to excessive vibration. Needless to say that the LAN's were not used.

3. Processes

a. Deployment Preparations - Problem areas included:
- o TA-50
- o Vaccinations
- o Units not taking all of their equipment
- o Carc paint on the antenna's - hinders DF capabilities

b. Training - Units are not using sustainment training. When the New Equipment Training Team fields a system to a unit, the team leaves a copy of the training materials used to teach the course. The company commanders are not using these materials to their fullest extent. Another issue that needs to be addressed, is the maintenance shops are not cross training their 33T's to other IEW systems, they are only allowed to work on one system. If that soldier dies, what will that unit do?

Another major problem encountered before and after the war was the units sending back LRU's to the SRA's that the units had the capabilities of fixing. This wasted time and government dollars.

4. Solutions

a. A majority of the problems listed above could have been minimized or completely taken care of if there had been better lines of communications. If each maintenance shop had direct communications with the SRA's and the DET's that would give real time data to work supply and technical assistance issues. This could have saved the government an exurbanite amount of money on usage of time, vehicle, and man-power.

b. There should have been a secure communications link between Vint Hill Farms Station and the SRA's in Saudi Arabia. A system along the same lines as that of the Goldwing would have been suitable. This would have been ideal over the use of the car phone or passing of information through SRA I for the following reasons:

- o Real-time communications
- o Secure Communications
- o Amount of data that could have been passed at a time

o Cut down on the dis-information
o Cost savings of an extreme amount
o Record of all passed information
o Stress on the human body

c. 33T's should have been used instead of contractors for the following reasons:

o Cost of the contract to the Government
o Most of the contractors are ex 33T's
o Contractors can quit whenever they want
o Living quarters of contractors have to be in accordance with the contract (contractors lived in air-conditioned trailers, military lived in army issue tents)
o Contractors not trained for a wartime environment
o Bad impression on soldiers in the units (When a soldier in a unit sees a contractor dressing in non-military clothes, hair not cut to military standards, and knowing that they are making more money than they are, they get the feeling 'Why should I stay in, when I can get out and do the same thing for more money, and not have all of the hassles of the army.'

The Army has spent a lot of time and money training the members of the 33 CMF to be the best in the IEW community. When the government goes out and contracts the work out, it diminishes the pride and the esprit de corps of the 33 CMF.

4. POC for this action is the undersigned, SELIM-TE, extension 6521.

5. CECOM Bottom Line: THE SOLDIER.

MICHAEL T. STALFORD
SSG, USA
New Equipment Training

Appendix BC

Stees, Bruce, 10 April 1991, Desert Shield, Desert Storm Trip Report [Memo]

MEMORANDUM FOR: MR. Robert Hirschhorn 10 April 1991

SUBJECT: Desert Shield, Desert Storm Trip Report.

PURPOSE: To Provide Operation Desert Shield, Desert Storm Information.

REQUESTED DISTRIBUTION FOR ENTIRE REPORT:

AMSEL-LC-RE-LA-E:	Mr. Curtis Anderson
AMSEL-LC-RE-LA:	Mr. David Sharman, Mr. Richard Adams
AMSEL-LC-RE-LA-IAN:	CW3 Mike Roltgen
AMSEL-LC-RE-LA-C-STEW:	Mr. Marvin Knight
AMSEL-LC-RE-LA-C-BRG:	Mr. Larry Cromer
AMSEL-LC-RE-LA-C-HOD:	Mr. Ross MacIntyre
AMSEL-LC-RE-LA-C-HUA:	Mr. Larry Bourne
AMSEL-LC-RE-LA-E-NBG:	Mr. Joe Rudewicz
AMSEL-LC-RE-LA-E-NEL:	Mr. Mose Early
AMSEL-LC-RE-LA-E:	Mr. Bill Faux

REQUESTED DISTRIBUTION FOR TRIP REPORT WITHOUT APPENDICES:

SELEM-RE:	Readiness Directorate Personnel
SELCI-DC	Mr. Larry Sheuble

POC: CECOM LAR Bruce Stees, Fulda/Wildflecken, ETS 321-3417
****

DESERT SHIELD - DESERT STORM TRIP REPORT

1. SUPPLY OPERATIONS:

1.A. Requisitioning Problems:

1.A.1 Requisitions were submitted manually until the automated supply systems were in place making telephonic requisitioning the norm rather than the exception. Conducting audit trails in SWA was extremely difficult.

1.B. Materiel Identification, Routing Problems:

..B.1. Most of the thousands of pallets were identified and routed to the correct supply support activities. Missing labels and packing lists due to the sun, wind, and rain accounted for the majority of the identification and routing problems.

1.C. Supply Support Activity Problems:

1.C.1. When orders were given to reposition, some units were assigned to a different SSA. There was little or no reconciliation of units requisitions from the former SSA to the present SSA. There was little or no effort made by the former SSA to transfer the materials it received for the unit to the units present SSA.

1.C.2. It was incumbent upon the units to make frequent visits to their SSAs as the SSAs had little or no transportation to deliver materials, nor did the SSAs attempt to notify the unit that unit materials had been received. Log Base Receiving Points and Field Landing Strips had rows of pallets identified for divisional units, however, no effort was made to notify the units. The CECOM LARs who routinely visited these sites informed the units of the location and amounts of materials, and elevated the issue to the CMMC for resolution.

1.C.3. Requisitions submitted by CECOM SWA personnel were filled and routed to the 503rd support group. It was incumbent upon the CECOM LARs to routinely visit the 503rd to glean the yard for CECOM materials.

1.C.4. When in-theater repair capability is not available, unit readiness suffers. More spares are required to compensate for the long lead time or those LRUs that must be shipped out of theater for repair. This is especially true when the LRU is PICA to and repaired by another service branch.

****

2. WEAPON SYSTEMS PERFORMANCE

2.A. AN/MSQ-103C Teampack: The Teampack proved to be one the MI Units most valuable assets. The Teampack was deployed with the AN/TSQ-138 Trailblazer with both systems obtaining primary power from the Trailblazer's 30KW Trailer Support Unit (TSU) Generator.

2.A.1. AN/MSQ-103C Problems, Solutions, Recommendations/Actions

2.A.1.A. Problem:

SWA temperatures were 23-35 degrees from 1800 to 1100 hours, and up to 65-95 degrees from 1200 to 1700. Operating personnel used the Air Conditioner for "Personal Comfort" rather than its intended purpose of sustaining equipment performance by cooling and filtering the ever present dust.

2.A.1.B. Solution:

Unit personnel were instructed to use the Air Conditioner for the sustainment of the Teampack Weapon System, and to clean the AC filters twice a week.

2.A.1.C. Recommendations/Actions:
Teampack is being deleted from inventory.

2.A.2.A. Problem:
The Teampack requires a precise (microvolt accuracy) alignment of the Receiver, Frequency Synthesizer Head, Frequency Control Unit, and Masthead Switch when an "phase lock" error is determined. DS units and the Logistics Assistance Representatives (LARs) were not provided the required TMDE, Technical Manuals, nor training to perform the crucial alignment in the field. The Tactical concept of "Black Box Swapping" can not be accomplished when a Weapons System requires an "In System" field alignment under wartime field conditions. Contractors should not be expected to perform field alignments in a hazardous wartime environment.

2.A.2.B. Solution:
The Receivers, FS heads, FCU, and Masthead Switch were turned in together to be aligned as a "system. Once received, the aligned LRUs were installed and the calibration data was loaded into the data processor on site. An operational check returned the system to mission capable within the frequency bands of interest.

2.A.2.C. Recommendations/Actions:
The Teampack is being deleted from inventory.

2.B. AN/MLQ-34 Tacjam: The Tacjam primarily served as an intercept system.

2.B.1. AN/MLQ-34 Tacjam Problems, Solutions, Recommendations/Actions:

2.B.1.A. Problem:
The M1015A1 On Board 60KW Power Generation System plagued the Tacjam's readiness. Most units did not have the LRUs required to effect DS repair. GS support groups had no 60KW generator LRUs, piece parts, nor the training required to effect repairs to the M1015A1 Power Generation System. Incorrect diagnosis increased down time. The Theater did not have the Generator Test Set required to effect repairs to the Generator System LRUs.

2.B.1.B. Solution:
Experience and controlled substitution verified the faulty parts. A Generator Test Set was requisitioned from Europe, unfortunately, it was not in place prior to the Ground war. Sgt Miller, Europe's M1015A1 Guru, and the 263rd's Chief Shields were instrumental in diagnosing and assisting maintenance personnel in effecting repairs to the M1015A1 in VII Corps.

2.B.1.C. Recommendations/Actions:
The M1015A1 Power Generation System readiness requires DS units stockage of all of the LRUs and common failure piece parts such as the flex drive shaft, the angle drive unit, and the speed increaser switch. Recommend that the units obtain the above parts and maintenance training.
Response and Action requested from: TACOM via B46 Readiness Directorate.
Request this information be published in the B46 "Hot Flash".

2.B.2.A. Problem:

An "In System" alignment of the Amplifier Control Units and Exciters is required when these LRUs are replaced. The requirement to perform an "In System" alignment negates the Fix Fast Forward maintenance concept. DS units, GS units, and the LARs do not the Technical Manuals nor the training to effect the required "In System" alignment during Wartime.

2.B.2.B. Solution:

The Contractors performed the "In System" alignment prior to the ground war, however, the contractor should not be expected to perform alignments in a hazardous Wartime environment.

2.B.2.C. Recommendations/Actions:

Recommend that the "In System Impedance Mismatches" be identified and corrected.

* Response and Action requested from: PM Tacjam, B46 Engineering Staff.

2.B.2.D. Recommendations/Actions:

Recommend that DS level units and the LARs be provided with the Technical Manuals and the training required to perform the "In System" ACU and Exciter alignment.

* Response and Action requested from: PM Tacjam, B46 Readiness Directorate.

'. AN/TSQ-138 Trailblazer: The Trailblazer performed its mission well. .a Linking was very successful which also served as a communications link.

2.C.1. AN/TSQ-138 Trailblazer Problems, Solutions, Recommendations/Actions:

2.C.1.A. Problem:

Units did not have a full compliment of Magic Mast spares such as the Pneumatic Control Assembly (PCA), the Hydraulic Control Assembly (HCA), and the Distribution Box. There was no Magic Mast GS repair facility in place. No Corps nor Theater Magic Mast spares were available for Trailblazer. Sand and Dust bound the mast sections hindering the raising and lowering of the mast. Most units did not have a trained 53DC9 MOS Magic Mast mechanic. A leaking Zero Degree Actuator device allowed the hydraulic fluid to saturate a microswitch which prevented a mast from being erected.

2.C.1.B. Solutions:

An AN/MLQ-34 PCA was used to replace a faulty Trailblazer PCA. A mast drifted due to a faulty HCA solenoid, but the mast could be repositioned to compensate for the drifting. Units did not have the Magic Mast oiler and Mast Restraint Kits required to lubricate the Mast Sections. Lubrication was accomplished by squirting oil into the mast section holes. The Zero Degree Actuator Device was removed and an additional "O" ring was installed which stopped the leak. The microswitch was immersed in alcohol and cleaned The mast was returned to operational following reinstallation of the above parts.

.C.1.C. Recommendations/Actions:

Recommend that units be provided a Magic Mast minimal stockage list for crucial LRUs and components. Efforts must be directed towards ensuring GS repair facilities are trained, stocked, and in place. Efforts must be directed towards ensuring that the 53DC9 is stationed at a Magic Mast unit.

The Zero Degree Actuator Device repair and/or replacement at the DS level should be revisited.
*Response and Action requested from: B16 Engineer Greg Marcincowicz, B16 Readiness Directorate.

2.D. AN/TLQ-17 Trafficjam: This system was the workhorse and it performed very well with no unresolveable problems at the DS level. It is reported that the HF antenna enabled the Trafficjam (Sand Crab configuation) to shut down Iraq Air Defense Communications.

2.E. AN/TRQ-32 Teammate: This system performed well. Data linking was very successful which also served as a communications link. The Teammate was linked to Tcac via the Tiger.

2.E.1. AN/TRQ-32 Teammate Problems, Solutions, Recommendations/Actions:

2.E.1.A. Problems:
The Prime Power Generation System plagued the system's readiness. The Shelter Mounted Unit (SMU), the Linear Actuator, and the Power Take Off (PTO) accounted for the majority of the Power Generation System problems. Motorpool mechanics cut the Power Generation System's wires when replacing the engines or transmissions.

2.E.1.B. Solutions:
Most units had adequate spares and experience to effect repairs to the Power Generation System. Units experiencing cut wires following engine/transmission replacement were instructed to recover the Magnetic sensor from the removed engine and to refer to an operational Teammate for wiring identification.

2.E.1.C. Recommendations/Actions:
Until such time as the Teammate is mounted on the 200 Amp Ambulance CUCV, units must send a Teammate experienced 33T into the motorpool each time an engine or transmission is replaced to ensure wires are removed and tagged for identification- not cut by the mechanics. The 33T must also ensure that the Magnetic Sensor is recovered. Request this information be included in the B46 "Hot Flash".
* Response and Action requested from: B46 Readiness Directorate.

2.F. EH-60A Quickfix: Prior to the Ground War, Quickfix units were under extremely tight Air Force flight restriction. The Quickfix became the Ground MI units primary asset during the Ground War. The Dipole Antennas cracked at an unusually high rate, however, adequate spares were available.

2.F.1. EH-60A Quickfix Problems, Solutions, Recommendations/Actions:

2.F.1.A. Problem:
The Integrated Inertial Navigation System (IINS) was responsible for most of the Quickfix's readiness problems. The 120 minute Gyro Bias could not be performed in the windy field environment as errors were introduced. Since there were few TACAN stations available, IINS drift errors could not be compensated, therefore, the Directional Finding (DF) accuracy was greatly impaired. It is suspected that heat caused the AN/UYK-64 Navigational Processor Unit's (NPU) internal power supply to fail. It was reported that NPUs were dumping memory.

2.F.1.B. Solutions:

The Pilots used Global Positioning Sets (GPS) to obtain precise positioning data and input that data into the IINS, thereby relaxing the requirement to perform the 120 Gyro Bias calibration. Installation of an external GPS antenna would have required a complete 40 hour System recalibration, therefore, the pilots held the GPS outside of the door to receive positions which enabled the AN/ALQ-151 system to accurately DF. The AN/UYK-64 used in both the Quickfix and the Trailblazer have identical internal power supplies which are modules. Controlled substitution of the internal power supply modules, and fabrication of a J11 shorting plug, returned a NPU and, ultimately, a Quickfix to Fully Mission Capable. The NPUs that were dumping memory were found to have sand and loose Circuit Card Assemblies (CCAs) which were returned to service by cleaning and refastening the CCAs.

2.F.1.C. Recommendations/Actions:

Recommend that a GPS be installed in all EH-60A Quickfixes and training be provided to the 33R, pilots, and the LARs. Priority should be given to the units facing possible redeployment.

* Response and Action requested from: PM Quickfix, PM EWRSTA, PM AVRADA, and B16 Readiness Directorate.

2.F.1.D. Recommendations/Actions:

Recommend that the AN/UYK-64 internal power supply module be assigned a NSN and repair by replacement be moved to the DS Level.

* Response and Action requested from: B16 Readiness Directorate.

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3. IEW LAR

3.1. The Ground IEW LARs supported an average of 6 MI units each and traveled an average of 300-600 kilometers per day.

3.2. The 18th Corps IEW LARs supported the following MI unit equipment:

Goldwing	HF Communications
Tiger	UHF Communications
AN/PPS-5	Ground Surveillance Radar
AN/TSQ-138	Intercept/Directional Finding System/Data Link
AN/TLQ-17	Intercept/Jamming System
AN/TRQ-32	Intercept/Directional Finding System/Data Link
AN/MLQ-34	Intercept/Jamming System
AN/MSQ-103	Intercept/Directional Finding System
EH-60A/ALQ-151	Intercept/Directional Finding System/Data Link/ Intercept/Jammer
RATT Rigs	VHF Communications/Teletype
IHFR	HF Communications
KY-57	Comsec

KG-84	Comsec
Magic Mast	Hydraulic/Pneumatic Mast Systems
AN/ALQ-162	Missile Detection/Jamming System
AN/ASN-132	Integrated Inertial Navigation System
AN/PRD-11	Intercept/Directional Finding System

3.3. IEW LARs also provided technical expertise and repairs on the M1015A1 (AN/MLQ-34 Track carrier) Power Generation System, M1028A1 (AN/TRQ-32 carrier) Power Generation System, and the MEP-114 Generator (AN/TSQ-138 30KW Generator) in the absence of TACOM and TROSCOM LARs.

3.4. IEW LARs provided first echelon repair assistance, field fixes, work arounds, and recommended the redistribution of assets within the unit to optimize the units readiness.

3.5. IEW LARs provided the GS detachments, Corps, and Theater current unit readiness data. In light of the low density of MI assets, the LARs coordinated with the Corps to prioritize its MI units enabling the LARs and the GS detachments to prioritize repairs and issue spares.

3.6. IEW LARs daily gleaned the Log Base C Field Landing Strip (FLS) for B16 and B46 pallets and obtained pallet destinations. The LARs ordinated with support groups for the release of the CECOM pallets and ordinated transportation of the pallets resulting in approximately 28 pallets of CECOM products recovered.

3.7. Much consideration should be given to the IEW LAR to weapon system/unit ratio. IEW weapon systems equal in complexity to most of the B16 weapon systems. The B16 weapons system LAR is responsible for one to three systems whereas the IEW LAR is responsible for some 8 weapon systems, 3 communications systems, and 3 avionics systems.
****

4. FIELDINGS

4.1. The following equipment/systems were fielded to MI units prior to deployment or in SWA just prior to the war:

Chemical Protective Equipment (CPE) for the AN/MLQ-34
AN/UGC-144 Secure Terminal
Fase (Upgrade)
AN/ALQ-162
AN/APR-39A
AN/ALQ-156
Global Positioning Sets
Stix
Hawkeye
Sun
Tiger

4.A. The Chemical Protection Equipment fielding for the AN/MLQ-34 Tacjam was plagued with problems. A unit reported that the DESCOM team assigned to perform the installation left the site before completing the installation leaving the removed Tacjam LRUs on the ground exposed to the elements. The installation hardware package was incomplete. The Chemical Filter was on back order. Some units did not accept the fielding.

4.B. The AN/ALQ-162 system was installed on the EH-60A by PM ASE. Pilots reported that the system did not interface with the AN/APR-39A leaving them guessing the missile approach pattern. An MWO had been applied to the APR-39A and ALQ-162, however, no copies of the MWO were left with the unit personnel nor the LARs. Little or no training was provided to the units or the LARs.

4.C. One type of the Global Positioning Sets were repaired by a contractor located in the CECOM SRA. Units were issued several different GPSs and Loran for position locating.

4.D. The Tiger system was designed to interface the AN/TRQ-32 and Tcac. Initially, the Tigers talked to Tigers only. The fielding team remained in country and resolved the problems enabling the Tiger to perform its mission.

:. The Stix, Sun, and Hawkeye systems are presumed to be NSA items.

4.1. Fielding Issues:

4.1.A. Fielders should coordinate with PEO, Theater, AMC, and the MSC for all aspects of the fielding.

4.1.B. Units experiencing problems with any electronics contact their CECOM LAR for assistance. Little or no effort was made to include CECOM LARs in the training or the fielding process. The CECOM LAR expended much time and effort in tracking down the fielder in their efforts to resolve operational and maintenance issues.

4.1.C. Fieldings should include complete packages, adequate spares at the unit, GS detachment, Corps, and Theater. Operational and maintenance training are paramount. The fielder should consider coordinating and providing in country repair capability or the additional spares to compensate for the long lead time in shipping and repairing the systems components out of Theater.

4.1.D. Much consideration must be given to increasing the units MTOE for the additional operational and maintenance personnel, and transportation requirements for the fielded system and associated spares. One system being fielded to a unit may or may not require a MTOE change, however, the fielding of many systems surely requires a MOTE change.

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5. OBSERVATIONS:

5.A. If Technical Manuals state that repairs are accomplished by replacement, the unit should have adequate spares to effect repairs. Unit sparing should be determined from historical data. GS detachments and Theater should maintain a complete sets of DX/Float spares.

5.B. Location of communications equipment antennas is critical to optimum performance of the equipment. While unit concealment in depressions is paramount, antenna placement above the depressions would optimize communications. Additional Low Loss antenna lead in wire complete with connector adaptors is required to locate the antennas above the depression. No recommendations for Concealing antennas in a desert environment can be offered.

5.C. Non Developmental Items (NDI) failed at high rate. Units aware of the NDI high failure rate suspended operation of the NDI until the Ground War in an attempt to reserve the NDI's limited operation for War usage.

5.C.1. Several NDI high failure rate components were identified. The high failures should be corrected by the manufacturer, or more reliable components be purchased. Until the high failure rate component issue is resolved, more spares are required to compensate for the long lead time in shipping NDI items out of theater for repair.

5.C.1.A. The 158th GS Detachment is to be commended for the repairs this unit effected to the NDI by controlled substitution when high failure component replacements could not be obtained. The 158th maintained the highest NDI readiness rates for their supported units in SWA.

5.C.2. Much consideration should be given to the conditions of acceptance when NDI equipment is transitioned to CECOM. Considerations/assurances follow:

5.C.2.A. NDI requisition demand history should be reviewed to determine high failure rate components and resolution requested by CECOM as a condition to acceptance.

5.C.2.B. NDI requisition demand history should be used to determine CECOM stockage levels and procurement intervals.

5.C.2.C. LAR NDI equipment performance/readiness input should be used to identify Materiel Support Package (MSP), Supply, Technical Manual, and Training deficiencies. Resolution should be requested by CECOM as a condition to acceptance.

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Appendex A

LAR QUALITY OF LIFE IN SWA

A.1. The 8/158th AVIM and the 517th Maint units inherited the responsibility of providing food and sanitation for some 60-70 civilians assigned to their compounds. Of these, about 20-30 were LAO personnel. LAO, Dyna Corp, Mantech, Agusta, and Martin Marrietta personnel accounted for approximately 25-40% of the compounds combined military/civilian population.

A.2. Units were unprepared to handle the extra civilian burden and had to reprogram their requirements for food, water, and sanitation facilities. Additional unit personnel had to be detailed to provide civilian support resulting in the units resentment towards its civilian population.

A.3. The units did not provide the additional manpower required to erect shelters and construct bunkers for their newly acquired civilian population. LARs erected tents, constructed and installed flooring (when wood was available), filled sandbags, and constructed their own bunkers.

.. The supporting units had no extra wiring to provide electrical power nor extra lighting kits required to install lights in the tents. Some LARs purchased kerosine lanterns to provide light to enable them to write their required Logistics reports until such time as they could obtain wiring and lignting kits from other units that they supported. It took 1 1/2 weeks for lights to be installed in the tents at both KKMC and Log Base "C".

A.5. In an effort to ease the growing tension between the unit and its civilian population, some of the LARs volunteered to assist the units in such support efforts as burning fecal matter, disposing of trash, burning trash, and obtaining and transporting kerosine fuel.

A.6. Military personnel reported that their clothes had been lost by the Quartermaster laundry facility. Central Issue Facility accounts for LARs were not in place. LARs concerned about the lack of replacement clothing, should their clothing be lost at the Laundry facility, locally purchased plastic wash tubs, detergent, clothes line, clothes pins, and washed their clothes by hand when water was available for clothes washing. Blackout conditions dictated that the washing of clothes be in daylight hours. In order to maximize the usage of daylight hours towards the conduct of Logistics Assistance, LARs utilized local nation laundry facilities whenever the laundry facilities were in route to the LAR's supported units.

A.7. Showers were available about every 2 days. LARs making the most of the ..ylight hours in the performance of Logistics Assistance duties often found . shower water supply depleted upon their arrival resulting in the LARs getting a shower about once in 4 days.

A.8. Some LARs averaged 300-600 Kilometers per day traveling to and from the units that they supported, Corps, GS detachments, field landing strips, and supply support activities. The excessive traveling often ment that these LARs missed the one and only hot meal offered at their "home" compound that day.

A.9. Some LARs were directed by their MSC to deploy with the units that they supported. There were not enough LARs to support each unit. There was little or no LAR deployment coordination between the MSCs and AMC resulting in the LARs being caught in the middle of the MSC/AMC conflict. The LARs caught in the conflict found lodging and transportation difficult to obtain which impaired the LAR's ability to support his assigned unit.

A.10. When the Air War started Scud attacks occurred about every 2 to 3 hours thru the night. The LARs assigned to KKMC donned their MOPP gear accordingly. Although the Scuds were ineffective as a destructive weapon they excelled as a terrorist weapon - very little sleep was obtained from 2000 to 0600 hours.

A.11. The LARs assigned to Log Base "C" were awakened about every 2 - 3 hours thru the night by the coalition Sorties as Log Base "C" was in their flight path. In addition, convoys of the Heavy Equipment Transports were constantly ard thru the night. Very little sleep was obtained thru the night.

...12. LARs were awakened by unit personnel requiring assistance at any given hour of the night resulting in the additional loss of sleep.

A.13. Some LARs received vehicles contributed by the Japanese which were issued rather than leased to the American Forces. LARs who received the cars contributed by the Japanese, and did not have rental cars authorized on their orders, incurred out of pocket expenses for flat tire repairs, inner tubes, tires, oil, gasoline, and oil changes. LARs traveling 300-600 kilometers per day spent the majority of that mileage traveling over the rocky desert terrain. When MOGAS was unavailable at the units or fuel points were too far away, LARs purchased gasoline from the local economy.

A.14. Some LRUs were critically short just before the Ground War started. Some of the units did not have enough tools to support all of their tecnnicians. LARs, using their own tools, provided repair instruction and effected repairs to the critical LRUs often returning the LRU to FMC. Tools such as Swiss Army Knives, Leather Mans, and multimeters, purchased by the LARs prior to deployment or from the local economy, were crucial to effecting critical LRU repair.

ISSUES:

A.A. LARs using the vehicles contributed by the Japanese should be ·mbursed for the out of pocket expenses they incurred.

A.B. LARs who purchased and used their own tools should be reimbursed. Each LAR should be issued a tool box.

A.C. LARs should receive the same income tax break rate as the field grade officers they serve with.

A.D. LARs require additional Protective Equipment (uniforms) during periods of hostilities. This should include name tags, MSC tags, and additional black baseball hats.

A.E. LARs require accounts with Central Issue Facilities within the theater of operation.

A.F. LARs should be reimbursed for the laundry wash tubs, clothes line, clothes pins, and detergent locally purchased. LARs should be reimbursed for local nation laundry expenses in light of water shortages.
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Appendex B

SUPPORT REQUIREMENTS FOR A LAO

B.1. The following represents the support required for approximately 25 LAO civilians, and are offered for consideration to the units tasked to support LAO personnel:

B.1.A. 1 GP Small, 2 GP Medium Tents, tent liners, sandbags, flooring, light kits, generator wiring, generator fuel barrels, 60KW generator, diesel, kerosine heaters, kerosine, camouflage, poles, cots.

B.1.B. Off Road Vehicles on a two LARs to a vehicle basis. The vehicle should have a Loran or Global Positioning Set, communications equipment, first aid kit, jumper cables, towing cable, 5 gal gas containers, and maps. Additional maintenance for 12-14 vehicles.

B.1.C. Central Issuing Facility provisions for lost/damaged clothing or TA-50 items for 25 personnel. This should include MOPP gear and accessories.

B.1.D. Quartermaster laundry service for an additional 25 personnel.

B.1.E. Class 1 account increased for 25 personnel.

B.1.F. 1 Shower unit, water bladder, circulation pump, immersion heater/tank/ required wiring, plumbing, and additional water delivery.

B.1.G. 1 Toilet unit, 5 gal fuel containers, fuel, shovels, and additional manpower required for fecal matter burning details.

B.1.H. 2 each 2 1/2 ton trucks with 4 additional drivers for hauling the above additional equipment.

B.1.I. At least 2 each Tactical telephones with 2 each separate numbers to be assigned to the LAO and installed in the LAO tents.

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Appendex C

CECOM MASTER TECHNICIAN ROLE IN WAR

C.1. It is recommended that the CECOM Master Techs not be assigned as supervisors nor assigned to support individual units. The CECOM Master Tech should be assigned to support approximately 6-10 LARs within his/her area of expertise.

C.1.A. There should be at least one Master Tech representing each Area of Expertise deployed to the Area of Operation to support the LARs.

C.1.B. Master Techs should establish a Master Tech Network within the Area of Operations to resolve issues outside of an individual Master Techs area of expertise.

C.1.C. Master Techs should be prepared to provide the LARs his/her expertise and assistance to effect field fixes and work arounds to enable the units to continue the war effort.

----- End of forwarded messages

----- End of forwarded messages

----- End of forwarded messages

Appendix BD

Faux, Bill, 24 April 1991, Trip Report, South West Asia (SWA) [Memo]

(Message # 2: 20384 bytes, New)
Date: Wed, 29 May 91 16:13:56 +1:0
From: CECOM IEW TEAM <cecomiew@seckenheim-emh2.army.mil>
To: selim-rr@MONMOUTH-EMH2.ARMY.MIL
Subject: [AMSEL-LC-RE-LA-E: IEW>1114-01//TRIP REPORT IEW MASTER TECH, EUROPE*FAUX//]

PLEASE PASS TO 1LT PELLISSIER.

----- Forwarded message # 1:

Received: from seckenheim-emh2.army.mil.army.mil
by masterm.seckenheim-emh2.army.mil id ac04929;
24 Apr 91 14:24 +1:0
Received: from monmouth-emh2.army.mil
by seckenheim-emh2.seckenheim-emh2.army.mil id aa06523;
24 Apr 91 7:14 EST
Date: Wed, 24 Apr 91 7:09:23 EST
From: AMSEL-LC-RE-LA-E <readi022@MONMOUTH-EMH2.ARMY.MIL>
To: AMSEL-LC-RE-LA@MONMOUTH-EMH2.ARMY.MIL,
AMSEL-LC-RE-LA-C@MONMOUTH-EMH2.ARMY.MIL,
SELIM-DIR@MONMOUTH-EMH2.ARMY.MIL
AMSEL-LC-RE-LA-E@MONMOUTH-EMH2.ARMY.MIL,
AMSEL-LC-RE-LA-P@MONMOUTH-EMH2.ARMY.MIL,
AMSEL-LC-RE-LA-C-HOD@MONMOUTH-EMH2.ARMY.MIL,
SELIM-RR@MONMOUTH-EMH2.ARMY.MIL,
AMSEL-LC-RE-LA-IAN@MONMOUTH-EMH2.ARMY.MIL,
AMXEU-L-CECOM-IEW@seckenheim-emh2.army.mil,
AMXEU-L-CECOM-MTIEW@SECKENHEIM-EMH1.ARMY.MIL
Subject: IEW>1114-01//TRIP REPORT IEW MASTER TECH, EUROPE*FAUX//

AMXEU-L-CECOM-IEW@SECKENHEIM-EMH2
IEW>1114-01//TRIP REPORT IEW MASTER TECH, EUROPE*FAUX//

AMSEL-LC-RE-LA-SWA-IEW

MEMORANDUM FOR CHIEF CECOM-LAO-SWA
FROM: MASTER TECH IEW, EUROPE.
SUBJECT: TRIP REPORT, SOUTH WEST ASIA (SWA).

1. TRAVEL ORDERS LO 12-17, 28 DEC 90, SECKENHEIM, GERMANY.

2. DUTIES.

A. Logistics Assistance Representative(LAR), Master Tech for Intelligence Electronics Warfare (IEW).

B. Supervisor for IEW LARs in SWA.

C. Alternate Contracting Officer for delivery order 0033, 012 of the Mantech contract to Intelligence Materiel Management Center (IMMC), Vint Hill Farms, VA.

3. ACTIONS/EVENTS.

A. Logistics Support.

1. I arrived in SWA on 5 Jan 91, at that time there was no logistics support plan (LSP) in place for IEW equipment in SWA so the first challenge was to assist ARCENT to establish an IEW LSP. After several meetings and briefings to the ARCENT G-4 and G-2 staff it was apparent that Maj. Froede and I would have to get general officer attention on the subject. We were able the get on MG Monroe, ARCENT G-4 and MG Stewert ARCENT G-2 calendars for a briefing on what support was required for IEW equipment.

The problem was two fold, first the 263 Maint Det for VII Corps was not capable to support a fast moving battle. This is based on the facts that the 263 IEW Det personnel lacked training on most of the "Big Five" systems and they had no 5 ton tractors assigned to them for movement of their repair and maintenance shelters. Next there were two operational Maint Dets within the XVIII Corps - 158 Maint Det and 159 Maint Det - and the XVIII Corps COSCOM was not willing to op-con one of the Maint. Dets to VII Corps. The way we attacked the situation was to request that all the Dets become Echelons above Corps (EOC) IAW current Army Regulations.

The end result was that the 158 Maint Det from Ft. ragg remained with the XVIII Corps, the 159 Maint Det from Ft. d was op-coned to the VII Corps and the 263 Maint Det from ablingen, Germany was moved to EOC. This served as the best plan for all the units because general support (GS) was moved forward with each Corps and one Maint Det remained in the rear with a contractor operated special repair activity (SRA) in King Khalid Military City (KKMC). No further problems were encountered with a support plan. I will add that the 263 IEW Det did pick up 4 ea. 5 ton vehicles o/a 5 Mar 91.

2. Next was the deployment. As the unit deployment began the Maint Dets were located at SRA I Dhahran and were using the 503 Maint Bn as the ship to DODAAC. This worked fine until the units started to move forward for the land battle. As a result of unit movements ship to addressees found it impossible to find the mark for units. The 159 Maint Det used four different Supply Support Activities and of course four different DODAACs. The problems this caused is still being felt and reconciliations are near impossible. The LARs assisted as much as possible in this area.

The LARs worked long hard hours searching the APODs and break bulk points looking for unit DODAACs and recognizable parts. I truly feel that without that effort many items would have been in frustrated cargo yards until the end of the war, then probably to DRMO because they couldn't be identified.

While the LARs screened the break bulk points and receiving points we encountered many others trying to find their tems, of course it is human nature not to be as careful with ms that are not yours. It has been observed that people would en packages and or the shipping document protectors attached to the shipping crates to see if the items were theirs. If the items was theirs no problem, however if the items were not the documents were not replaced as carefully as it should have. This added to the frustrated cargo dilemma.

Problems caused by push packages and items shipped from USAREUR to the SRAs took an extraordinary amount of time to be delivered. I still do not have an answer to that problem. In some cases the items never showed up. Example is the AN/GSM-318 Test Set was shipped from USAREUR as 2 boxes. Box 1 of 2 was found by LAR Stees at Log Base "C" in frustrated cargo, box 2 we have not found. In this case the documentation was correct however the 503 Maint Bn had jumped to a new location and the APOD didn't know where to forward the item so it was placed in frustrated cargo. We presume that box 2 was forwarded somewhere else with out the documentation. Box 2 had the OQ-321 test set for testing the AN/UYK-19 CPUs.

3. As far as technical assistance on the IEW equipment goes, our LARs excelled. I believe that if not for the LARs being on site as often as they were the units would not have been as successful. On several occasions the LARs and I provided on the spot OJT training for operators and maintainers, this is evident in the Weekly Accomplishment Reports (WAR) submitted to the SWA branch chief.

Prior to the ground offensive the IEW LARs continually peaked the equipment and made certain all efforts were taken to ›ve a full compliment of unit LRU spares to support the land tle. In some cases complete sets of spares were not available .is caused some anxiety for the battalion CDRs and C&E shops but they continued to do the mission.

B. Supervisory Role

1. On 4 Feb 91 I received a letter from the Chief, CECOM-SWA naming me supervisor for the IEW LARs in SWA. The LARs were Bruce Stees, Joseph Rudewicz, Mose Early, Larry Cromer, Greg Kranfuss and SFC Wheeler.

2. It was a pleasure serving as the supervisor of these folks since each displayed professionalism and were all self starters.

C. ACOR

1. I was the ACOR for delivery orders 0031 and 0033 of contract DAAB10-89-D-0503. I had requested the letter chartering me as the ACOR in order to assist Maj. Froede, IMMC, because he was also the CECOM Executive Officer and had limited time to spend on IEW problems.

2. There were a total of 33 contractors in three locations in SWA; 15 in SRA I Dhahran, 15 at SRA II KKMC and 3 at SRA III Riyadh. SRA I was the first of the SRAs and offered the most thorough support in SWA from the start. I base this on the fact that they were better equipped and had more repair parts on hand. SRA II was planned to be established and fully operational · mid Dec 90, however the equipment did not arrive in time for s to happen. SRA II was not operational until mid Jan 91. ecause of the late start it took quite awhile for them to become effective. As the units deployed north we moved support forward by moving some of the hot mock ups, test fixtures and repair parts from SRA I to SRA II.

3. Prior to G day contact team visits were made to all the MI units. As a result of the effort of Mantech CFRs, IMMC people and the LARs, IEW equipment was at very high state of readiness at the start of the ground offensive.

4. The only problems that I encountered as ACOR was that the SRA sites were in intense competition with each other. At times competition has a positive effect on production and the work force but in this case it was causing morale problems at both sites. I talked with the site managers and expressed my concerns, they responded well and support got back to the normal excellence expected from Mantech.

The other situation was that the life insurance for the contractors covered them in Saudi Arabia only. This limited the contact mission area that were covered. It was not a major problem since the ground battle was finished in short order and no contact missions were required during the fight. CECOM LARs and a volunteer team from the contractor did go into Iraq for a two day mission after the area was declared secure by the CG VII Corps.

5. SRA is currently the retrograde point for all NDI equipment in SWA. This was coordinated with DA, ARCENT and IMMC.

6. As I stated before the readiness of the IEW quipment was at a higher level then I had ever witnessed. I ieve that the combined effort of the LARs and CFRs was the jor factor in this.

4. OBSERVATIONS/RECOMMENDATIONS

A. Life support for the LARs. After living under several different conditions here I can tell you that there was not equity for the LARs. The LARs that were deployed to the more forward positions did in fact have the most sever conditions to cope with. There were extra chores put on them such as tent building, making (digging) bunkers, filling sandbags, etc. Most of the time there were only cold showers if any at all and very seldom were there hot meals. Naturally, the further to the rear the better the life support. I know that it is near impossible to rectify this problem but I suggest that if a deployment is required again we look to team concept and CECOM keep the integrity of that team with TDA life support equipments.

B. The IEW LARs were supporting the Theater as teams, two in VII Corps, two in XVIII Corps, one with EOC and I as the supervisor/Master Tech. This served well for the quick ground offensive that took place, however if the war had lasted longer I feel that a LAR in each Battalion would have been required. The LARs had to spend many hours driving to and from units. I might add that the roads were extremely dangerous and we are ortunate that no one was injured seriously.

C. I have very little to say about the LAO support since I was not assigned to a local LAO. The LARs should be interviewed or a questioner should be made on how they interfaced during deployment. I've heard several comments from LARs that are not happy with he situation. Only Mr. Cromer was deployed as an IEW LAR with a local LAO, I haven't had any feedback from him on LAO support or direction. I do believe that the MSC supervisors need to have complete control of the LAR assignments and tasking to assure all emergency situations can be taken care of quickly.

D. Equipment fieldings at the last minute was one of the most frustrating events we were involved in (or not involved in might be a better term). The PMs and contractors were eager to show their wares, but to have fieldings with no training or little training was not viewed as productive. I believe that the LARs should have been better informed to the types of equipment and a schedule of event leading to the fieldings, this would have insured that the units were at least ready for the teams. As it was several units were "dropped in on" by fielding teams.

E. Test program sets for IEW equipment were not used for GS repair for several reasons. First the hand off-not fielding-was not handled well at all. The TPSs were not verified and none of the end items were tested by the fielders. The TPS hand off at KKMC was on 15 Jan 91 two days before the air battle started. CECOM instructed the fielders to depart.

In order for the TPS effort to become a viable means of air IMMC must take action to verify and validate each TPS that .. fielded to the ATE dets. The TPS fielded to USAREUR had also experienced hard times, the techs at General Support Center Pirmasens have worked at using them and have had limited success.

F. I am pleased to report that all the unit Commanders & C&E warrants I talked to were satisfied with the support provided to them by the CECOM from LARs to contractors. There were no incidents that support was lacking or of poor quality.

G. I don't wish to sound like a disgruntled employee, but in the future I would like to see an element added to the rating plan pertaining to up to date passports, shot records etc. In one case I know that we required a person here with certain skills and the person was delayed because he/she did not have a passport. This is a basic requirement for deployment.

5. SYSTEM FAILURES/SUCCESSES.

A. M-1015A1 performance was much better than I expected during the operations. This maybe because the vehicle was exercised more frequently then in garrison, TACOM had previously stated to me that driving the vehicle should add hours of operation to the engine and stop wet stacking, looks like they were on target. The vehicle did have some failures but not the -mal poor readiness. TACOM LARs were normally unavailable ause of the support required for HETs and M1A1, but when SSG ..iller, TACOM-Europe arrived in SWA he uncovered several problems. I will not elaborate on TACOM support however, one thing that was needed in SWA was speed control switches for 6 ea M-1015A1s. TACOM requested the switches and were told that the switches were being replaced by a new solid state switch. The solid state switches were delivered to CECOM. Well as it turned out the switches were delivered to Center for Signal Warfare, Vint Hill Farms Station, Va. The CSW purchased the switches for evaluation not as a source of supply for repair parts. I departed theater prior to any switches arriving.

B. AN/TLQ-17A(V)3. This system was considered the best performer from most of the MI folks I talked with. The receiver was better for intercept and readiness was more reliable.

There was a problem early on which was taken care of by IMMC. The XVIII AB Corps had AN/TLQ-17A(V)1 systems-mounted on M-151 jeeps. MSG King fielded and performed the swap out of the vehicles to HMMWVs. Additional HMMWVs were shipped to SWA for USAREUR systems. ARCENT was asked to coordinate fielding of HMMWVs to the USAREUR units (USAREUR vehicles are CUCVs) after the cease fire. I had departed theater prior to any decision from ARCENT. as I understand from conversation with IMMC in country folks the swap out will not take place in SWA.

Another success was the use of a log periodic ant for band 1. For further details suggest you contact the undersigned or MSG King, SELIM-TP.

C. AN/MLQ-34. The system readiness was also higher than expected. The main concerns were shortage of LRUs. The ICS contractor normally supports the system with TPSs and or a system to check the faulty LRUs. The EQUATE that the ICS contractor has in Germany is sn 11 which is an older system and uses rev B software. In SWA the TPSs were not working, as I previously stated. Many LRUs were stacking up at the SRAs and the techs had to go to a unit and ask if they could pull a system off line to use as a hot mock up, normally the units would support the effort in order to have some LRUs as spares.

The systems that were deployed from USAREUR were early models manufactured by GTE and the other systems in the fleet are manufactured by AEL. There is concern over the compatibility of the LRUs from one system to the other. So IMMC coordinated to have 6 ea. AEL systems shipped to SWA to replace the USAREUR divisional systems. The 1AD swapped there systems in mid Feb 91 and the 3AD elected not to swap out the systems. IMMC and the LARs suggested to use the displaced systems as 1 ea hot mock up and two floats for battle damage. This was approved by ARCENT and thus fixed the maintenance problem for the ICS contractor.

There was still a problem with shortages of R-2144 receivers. The rcvr is used in AN/MLQ-34, AN/TRQ-32 and AN/TSQ-138. The problem is that the US Army is not the PICA. The item is a NIMCUS 3 item and the Army can not repair the item. The US Navy is the sole source for the rcvr. USAREUR was short 30+ rcvrs (all theater) prior to their deployment. This degraded the operations of most systems but did not cause any NMCS status.

D. AN/TRQ-32(V)2. Over all readiness was good. The problems were as expected. Both the FORSCOM Maint Dets were able to repair the systems and the ICS had no problems with supporting the LRUs with the hot mock up.

E. AN/MSQ-103C/B. The C models are mounted on the M-1015A1 and the B models are on the CUCVs. Readiness was as expected. The 159 Maint Det used a hot mock up that they acquired for most of the theater repairs. The 263 LEMCo had sufficient spares to help the readiness. This system has been declared obsolete by the US Army and will be retired.

F. AN/TSQ-138. Readiness was good. The Net radio protocol operated good in the flat terrain, as the radios are LOS and the NRP does require intense training to be effective. The MI CDRs rely on the information flow through NRP. A system relay was fielded to allow further distances from the sensors to the command, called TIGER. There were problems with the relay that were worked out by CSW and it seemed successful.

G. Improved Guard Rail V IGRV. The 1 MIB system readiness was excellent. The system was deployed from USAREUR to SWA by aircraft. After an inventory the unit transported the IPF via road to their TAA and operational site (940KM) and were operational in 24 hours. This was done without any, repeat any contractors, the only assistance given was by CECOM LAR Kranefuss.

The 2 MIB had several problems which may have been caused during shipment, I was not in country when they arrived but LARs have reported that the systems had been exposed to condensation and the disk drive heads were corroded. I am no certain to the amount of problems this caused but the PM for IGRV had an -tire Perkin-Elmer computer sent to bring the system to FMC. The system was ught up however the bad disk drives did corrupt the system software. The .nter for Software Eng rep in SWA were asked to provide assistance to the unit. The CSE reps requested a copy of system software, the software did not arrive and the unit obtained a copy of the software from 1 MIB and built a new data base. I was informed by the ESSO people in Seckenheim that they have back up software for both USAREUR IGRV units and they were not notified of the problem.

H. AN/ALQ-151. The system readiness was good. Mantech was able to repair most of the LRUs that were work ordered to them. There were problems encountered with obtaining a crew call button for the EH-60A for 1 AD. LAR T. Cox had faxed the EOC CECOM 09 Feb 91 with information and a request for assistance. Basically the item is not in the inventory and can only be purchased from AEROSPACE OPTICS INC, Ft. Worth, TX, the call button had not arrived in country prior to my departure. Specifics on the subject are addressed as a separate issue in the IEW Users Group minutes, so this is not a new issue but one of the tiresome old issues that has not been resolved.

6. This report is not all inclusive of the support provide or the performance of the systems. Anyone wishing to comment or inquire about Operation Desert Storm feel free to contact me.

6. POC William V. Faux, DSN 370-6124 or Commercial 0621-474557, CECOM-IEW Europe Master Tech for IEW.

//SIGNED//
lliam V. Faux
ter Tech for IEW, Europe.

EOM

----- End of forwarded messages

Appendix BE

USACIMMC Briefing, undated, Battlefield Performance Assessment

BATTLEFIELD PERFORMANCE ASSESSMENT

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PURPOSE

This slide shows the purpose of the Battlefield Performance Assessment we conducted on the evaluation of the Big Five - TRAFFICJAM, TEAMMATE, TRAILBLAZER, TACJAM and QUICKFIX. The review included doctrine, training, maintenance and system design factors and compares SWA data with that of the SDC Program. Finally, we will examine how we believe the SWA experience is expected to impact the SDC program.

PURPOSE

- Evaluation of SWA IEW Equipment Operations
- Review Impact of SWA on IEW Doctrine, Training, Maintenance Procedures and System Design
- Comparison of SWA Operations vs SDC Program
- Impact of SWA Results on Future SDC Programs

BRIEFING OUTLINE

This is an outline of today's briefing. It will consist of topics listed on this slide. Our first topic, is Introduction, Background and Methodology.

BRIEFING OUTLINE

- Introduction, Background and Methodology
- SWA Assessment
- SWA Findings and Recommendations
- SWA Identified Other Uses for SDC Data
- Future SDC Program Needs
- Recommendations

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BACKGROUND

This Battlefield Assessment effort was undertaken jointly by the PEO IEW and USACIMMC. The evaluation period included both Desert Shield and Desert Storm. We had no means of separating Desert Shield data from Desert Storm data. Data collected during Desert Shield-Desert Storm was compared with data compiled from the SDC program. The wealth of existing data provided by the SDC effort was absolutely essential to our ability to perform the Battlefield Performance Assessment. We also used data that was provided by the in country Special Repair Activity (SRA).

BACKGROUND

- Evaluation was a Joint PEO-IEW/USACIMMC Effort
- Evaluation Period Included Desert Shield & Desert Storm
- IEW SDC Program in Place Since 1987
- SDC Program Key to SWA Evaluation Effort
- In-Country SRA Data Supported SWA Evaluation

EVALUATED SYSTEMS

This shows the evaluated systems. In addition, we performed a cross-system evaluation, which is really the basis for the briefing today.

EVALUATED SYSTEMS

• AN/ALQ-151(V)2	QUICKFIX
• AN/MLQ-34	TACJAM
• AN/TLQ-17A(V)3	TRAFFICJAM
• AN/TRQ-32(V)	TEAMMATE
• AN/TSQ-138	TRAILBLAZER

• Cross System Evaluation

DATA SOURCES

The data sources are as shown on this slide. Data from the Emergency Operations Center (EOC), provided us with in- country arrival dates, system downtime and reasons for being down. The ICS contractor records identified LRU and CCA failures, along with the repair parts needed to correct the failures. Sample Data Collection efforts allowed us to establish a SWA operational baseline based on hour meter readings for both mission and transportation systems that had left and returned to the SDC Program. Surveys of Desert Storm participants provided substantial subjective data and identified issues of concern to the participants.

DATA SOURCES

- Emergency Operations Center Tracking Data
- Maintenance Data from ICS Contractor
- Sample Data Collection Information
- Survey of Desert Storm Participants

ASSUMPTIONS

Assumptions critical to the assessment were: Equipment was available for operations from the day it arrived in SWA through the end of Desert Storm; All NMC days were recorded on the EOC reports; An LRU job-ordered to the ICS contractor constituted a system failure; Hour meters on the SDC systems, as previously mentioned, were used as the baseline for the SWA operations. The last assumption was that the operational hours for all systems, by system type, were equal to the operational hours derived from systems in the SDC program. This assumption allowed us to establish the baseline required to make valid comparisons with the SDC program's data, and increased the amount of data available to the analysts.

ASSUMPTIONS

- Operational Days Span Arrival Date Thru 1 Mar 91
- USACIMMC EOC Reports Identified All NMC Days
- Contractor LRU Job Orders Equate to System Failures
- SDC System Hours Used as Baseline for SWA Operations
- All Systems Operated Equally

METHODOLOGY

The methodology used is shown here. It consisted of the contractors assembling and compiling objective and subjective data on each system, and arriving at initial conclusions and findings. These conclusions and findings were then reviewed at an IMMC working level meetings where preliminary recommendations were prepared. A functional level review, attended by IMMC, PM SW, CSWD and PEO IEW personnel was held next to refine and revise as needed, conclusions, findings and recommendations, and to identify ongoing actions. Following this functional review, the contractor assembled recommendations and compiled lists of ongoing actions. These were assembled into the draft Executive Summary and system reports, quality controlled, and then submitted to the government. This process was followed for each of the five systems and for the cross system evaluation.

METHODOLOGY

- Assemble and Compile Data on Each System
- Derive Conclusions and Findings From Data
- Review at Working Level
- Review at Functional Level
- Assemble Final Recommendations and On-Going Actions
- Submit Executive Summary and System Report

DATA ANALYSIS

Our analyses considered maintenance from the aspect of the mission equipment, the prime mover, and power generation equipment. This resulted in some system design ramifications, which were subsequently pursued by project managers. The input from CIMMC, CSWD, and the PM's offices were very important in this process. We also looked specifically at communications, and command and control.

DATA ANALYSIS

- Maintenance Analysis
    - Mission Equipment
    - Prime Mover
    - Power Generation
- System Design Analysis
- Communications Analysis
- Command and Control Analysis

BRIEFING OUTLINE

We turn next to the SWA assessment portion of the briefing.

BRIEFING OUTLINE

- Introduction, Background and Methodology
- SWA Assessment
- SWA Findings and Recommendations
- SWA Identified Other Uses for SDC Data
- Future SDC Program Needs
- Recommendations

EXAMPLE OF SDC DATA NORMALIZATION AN/TRQ-32(V)

In order to compare SWA data with that from the SDC program, we had to normalize the SDC data. Here is an example of SDC data normalization for the TEAMMATE system. Normalization of the data was achieved by eliminating awaiting maintenance and administrative delay days from the basic SDC data. We found that in SWA these two areas were essentially non-existent. We also found that when the data was normalized in this way that the SDC and SWA data tracked very closely. Incidentally, it also shows that the operational availability of these systems could be raised approximately 7-21% if it were possible to place the same emphasis on readiness in peacetime as during hostilities.

EXAMPLE OF SDC DATA NORMALIZATION AN/TRQ-32(V)

	Total Available Days	NMC Awaiting Maint/Admin Delay Days	NMC Supply Delay Days	NMC Hands On Delay Days	Total NMC Days	Operational Availability
SWA	3,573	N/A	N/A	N/A	240	93.3%
SDC minus Awaiting Maint/Admin Days	37,178	0	3,383	1,210	4,593	87.6%
SDC 3 year Total	37,178	4,872	3,383	1,210	9,465	74.5%

AN/TRQ-32(V)

EXAMPLE OF SDC DATA NORMALIZATION AN/TLQ-17A(V)3

Here is a look at normalized SDC data from the TRAFFICJAM system . Note, the normalized SDC data fell within 3 percentage points of the SWA experience.

EXAMPLE OF SDC DATA NORMALIZATION AN/TLQ-17A(V)3

	Total Available Da:	NMC Awaiting Maint/Admin Delay Days	NMC Supply Delay Days	NMC Hands On Delay Days	Total NMC Days	Operational Availability
SWA	3,057	N/A	N/A	N/A	97	96.8%
SDC minus Awaiting Maint/Admin Days	32,553	0	1,687	364	2,051	93.7%
SDC 3 Year Total	32,553	2,167	1,687	364	,218	87.0%

AN/TLQ-17A(V)3

EXAMPLE OF SDC DATA NORMALIZATION AN/TSQ-138

This slide illustrates that normalized SDC data for the TRAILBLAZER falls within approximately 6% of the SWA data. One can also note the potential for raising the OA about 12% with additional emphasis on maintenance during normal operations.

EXAMPLE OF SDC DATA NORMALIZATION AN/TSQ-138

	Total Available Da:	NMC Awaiting Maint/Admin Delay Days	NMC Supply Delay Days	NMC Hands On Delay Days	Total NMC Days	Operational Availability
SWA	2,440	N/A	N/A	N/A	227	90.7%
SDC minus Awaiting Maint/Admin Days	28,682	0	2,832	1,465	4,297	85.0%
SDC 3 Year Total	28,682	3,299	2,832	1,465	7,596	73.5%

AN/TSQ-138

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EXAMPLE OF SDC DATA NORMALIZATION AN/MLQ-34

The TACJAM normalized data tracks within 2% of the SWA data. It also shows the highest potential for OA improvement, 21%, during normal operations.

EXAMPLE OF SDC DATA NORMALIZATION AN/MLQ-34

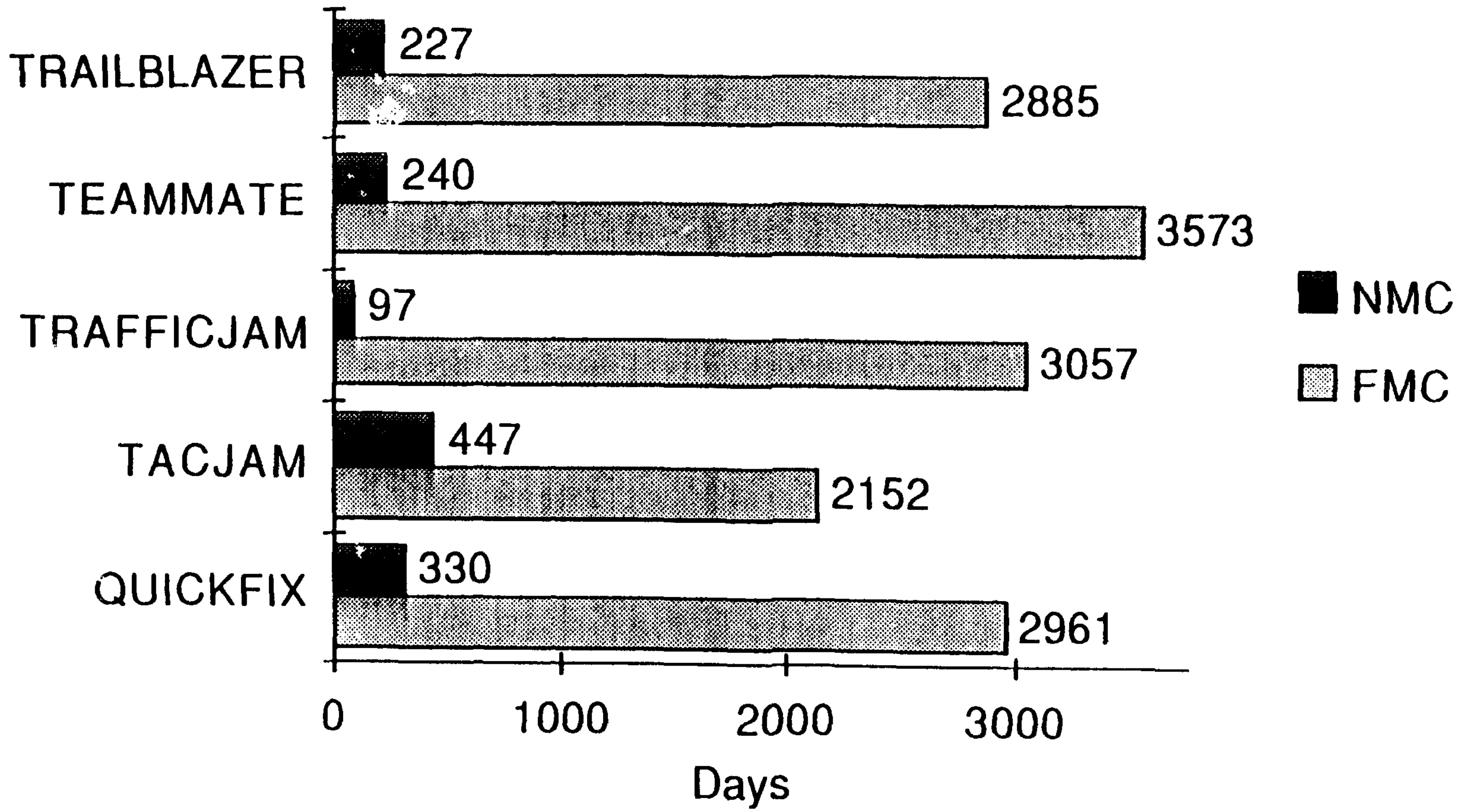
	Total Available Da:	NMC Awaiting Maint/Admin Delay Days	NMC Supply Delay Days	NMC Hands On Delay Days	Total NMC Days	Operational Availability
SWA	2,152	N/A	N/A	N/A	447	79.2%
SDC minus Awaiting Maint/Admin Days	30,373	0	5,570	1,348	6,918	77.2%
SDC 3 Year Total	30,373	6,439	5,570	1,348	13,357	56.0%

AN/MLQ-34

TOTAL DAYS vs NMC DAYS

This is a compilation of Non Mission Capable and Fully Mission Capable Days for the systems surveyed in SWA. This chart gives you a feeling for the number of days each type of system operated, and the approximate proportion of non mission capable to operational days.

TOTAL DAYS vs NMC DAYS



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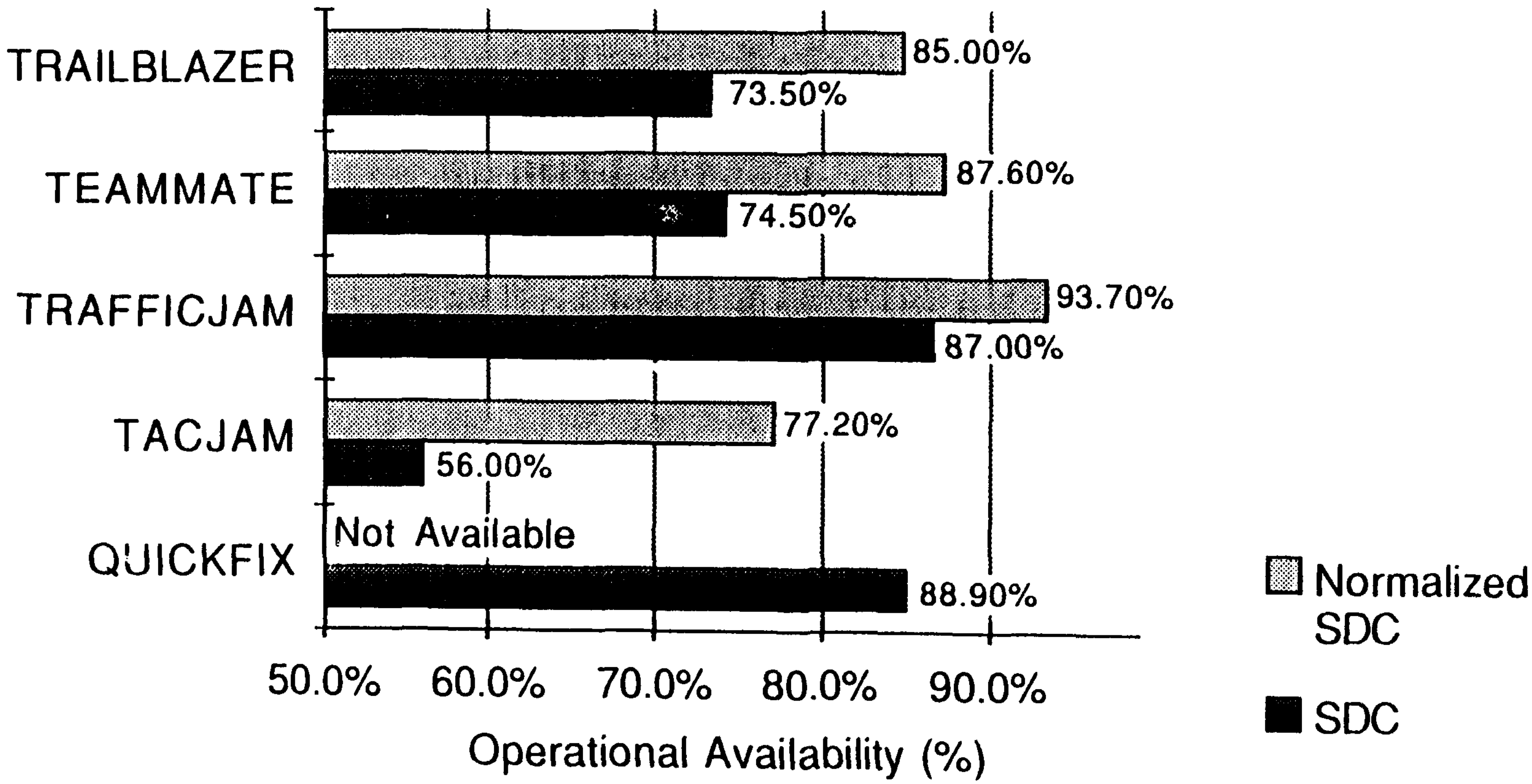
SWA vs NORMALIZED SDC OA

This slide shows the operational availability percentages for both the SWA data and the normalized SDC data. Normalized SDC data is not available for QUICKFIX because the SDC program data for QUICKFIX lacked the detail to separate awaiting maintenance and administrative delays as distinct categories. As you see here, the differences between the normalized SDC and SWA data is 6%, or less for all systems.

SDC vs NORMALIZED SDC OA



• Elimination of Admin & Awaiting Maintenance Delays Increases OA 7-21%

NMC DAYS by FUNCTIONAL GROUP

This chart shows Not Mission Capable Days by functional group. It is based principally on EOC data from SWA. As you'll note, the Transportation and Power Group accounted for 59% of recorded Non Mission Capable Days, while the mission equipment accounted for approximately 22% of the total downtime.

NMC DAYS by FUNCTIONAL GROUP

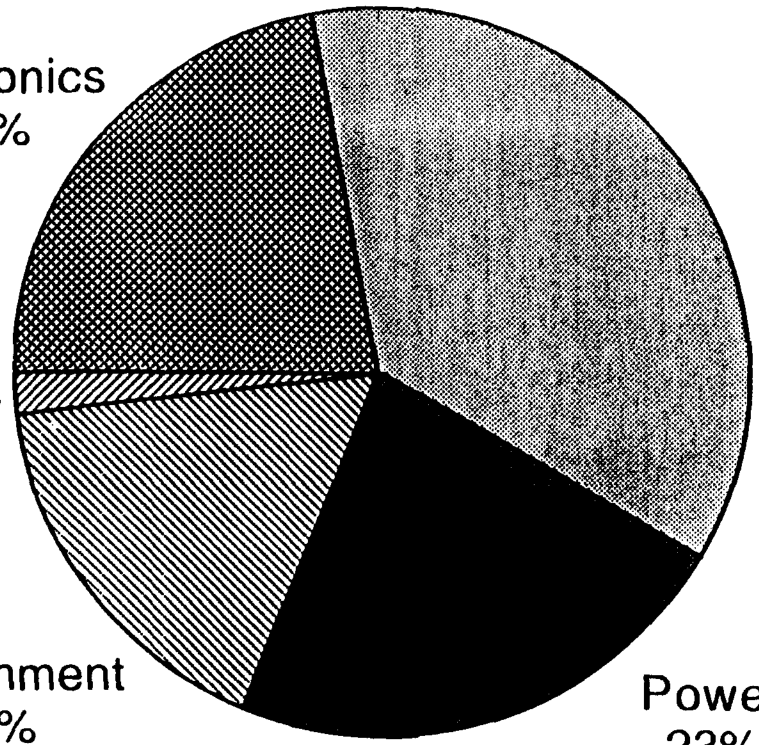


Chart includes all systems

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NMC DAYS by FUNCTIONAL GROUP

This slide shows a summary of all Not Mission Capable days by *system* and by functional group. The data tracks with previous slides, showing TRAFFICJAM with the fewest NMC days and TACJAM with the most.

NMC DAYS by FUNCTIONAL GROUP

	TACJAM	TRAILBLAZER	QUICKFIX	TEAMMATE	TRAFFICJAM
Power	226	9	0	61	9
Transportation	119	125	143	101	0
Electronics	72	31	96	78	18
Communications	0	0	23	0	0
Environment	30	62	68	0	70
	447	227	330	240	97

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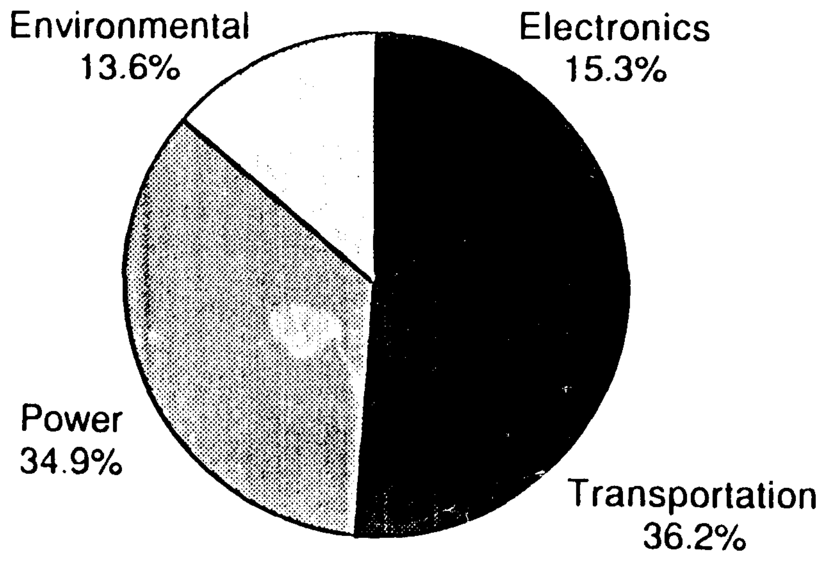
COMPARISON OF NMC DAYS TRACKS vs WHEELED VEHICLES

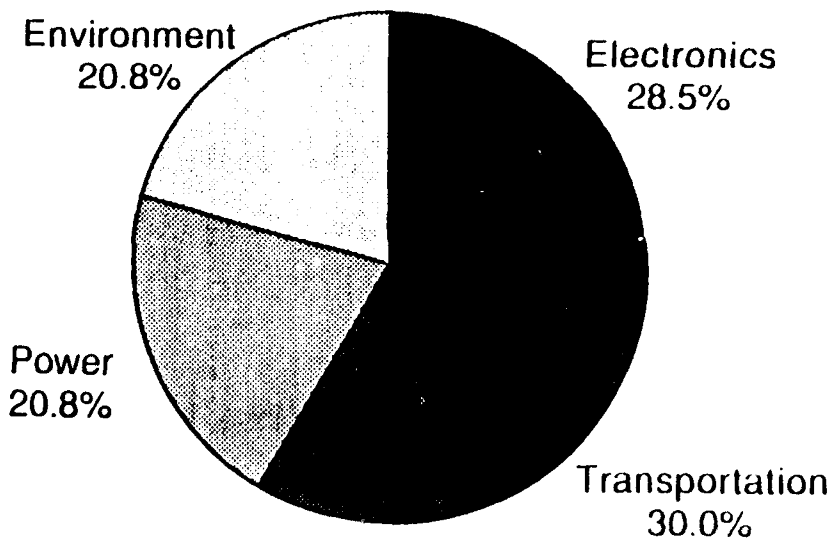
Comparing track and wheeled vehicles shows that the Transportation and Power subsystems on the track vehicles cause significantly higher percentage of NMC time (71%) than on the wheeled systems (51%). The higher percentage of mission equipment NMC time for wheeled systems is the result of fewer NMC days for the transportation and power functional groups.

COMPARISON OF NMC DAYS TRACKS vs WHEELED VEHICLES



Track Vehicles

Total NMC Days=674



Wheeled Vehicles

Total NMC Days=337

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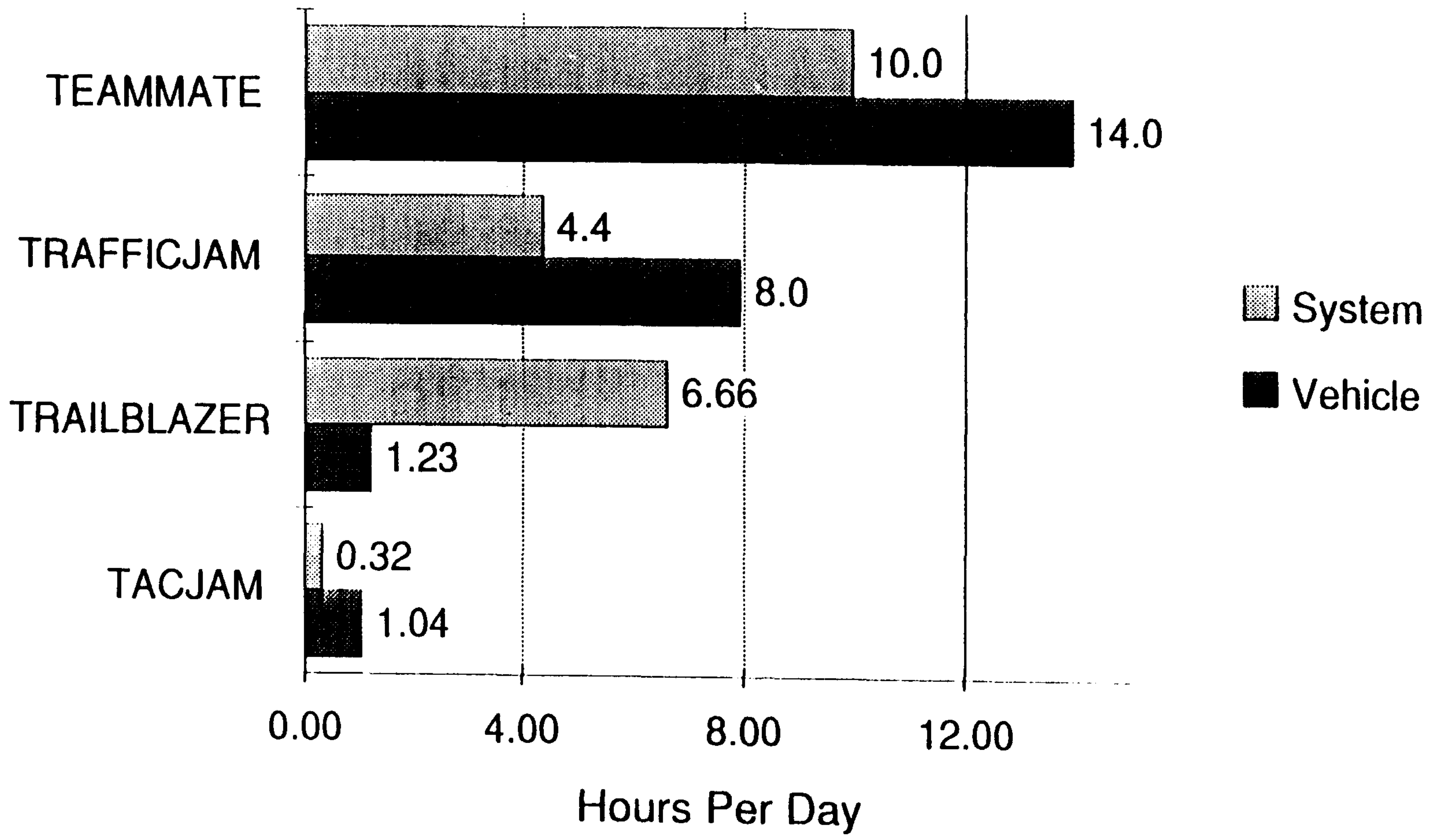
EQUIPMENT UTILIZATION

This slide shows the equipment utilization in SWA of the mission equipment and the vehicle. TRAILBLAZER was the single system where the vehicle was used less than the mission equipment. This was primarily the result of using a towed generator to power TRAILBLAZER most of the time. All other systems require the vehicle's engine to provide power.

EQUIPMENT UTILIZATION



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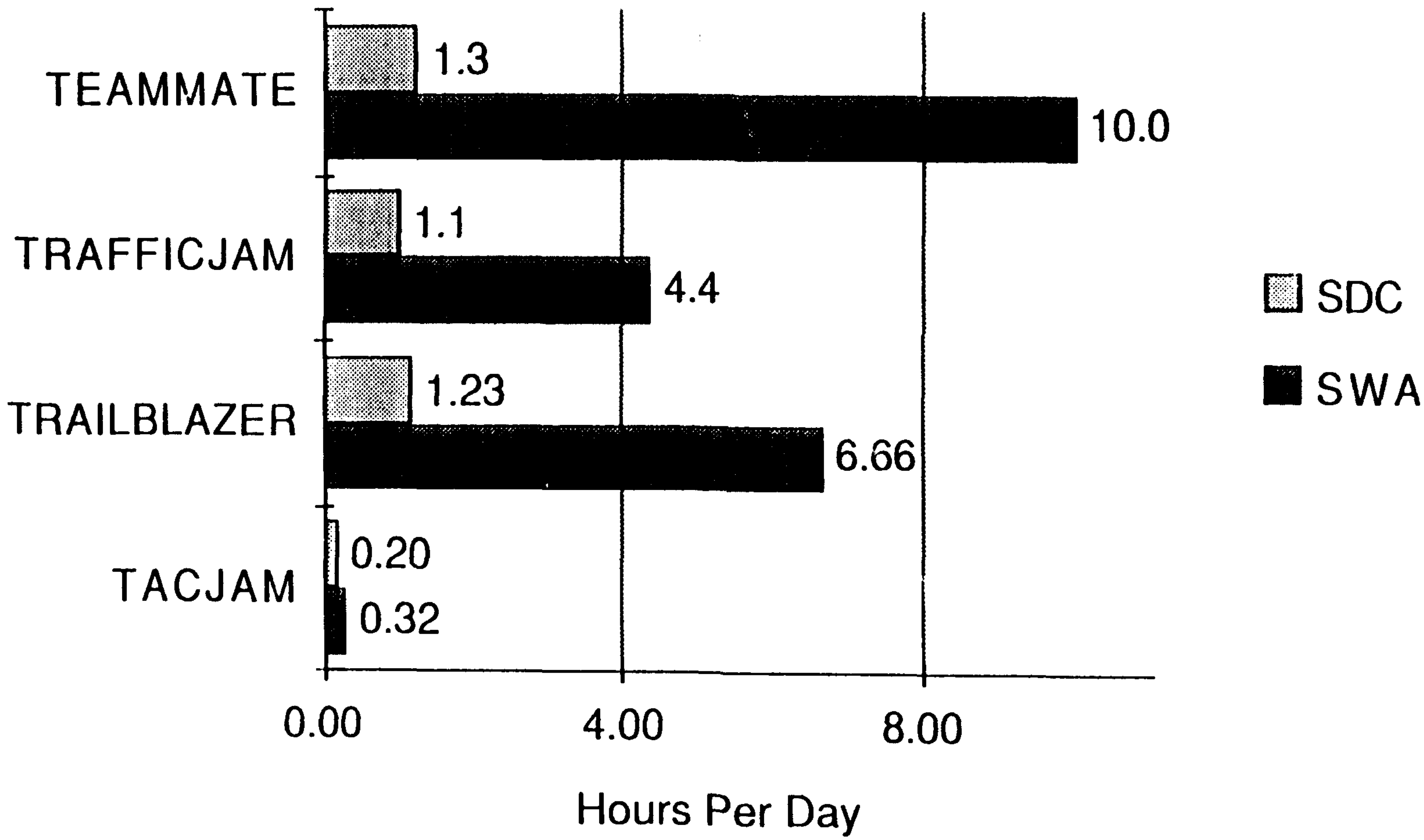
SYSTEM UTILIZATION

This slide is a look at the SWA System Mission Hours utilization per day compared to SDC Mission System Utilization. With the exception of TACJAM, systems were used significantly more in SWA than was experienced during normal unit operations and training over the past three years.

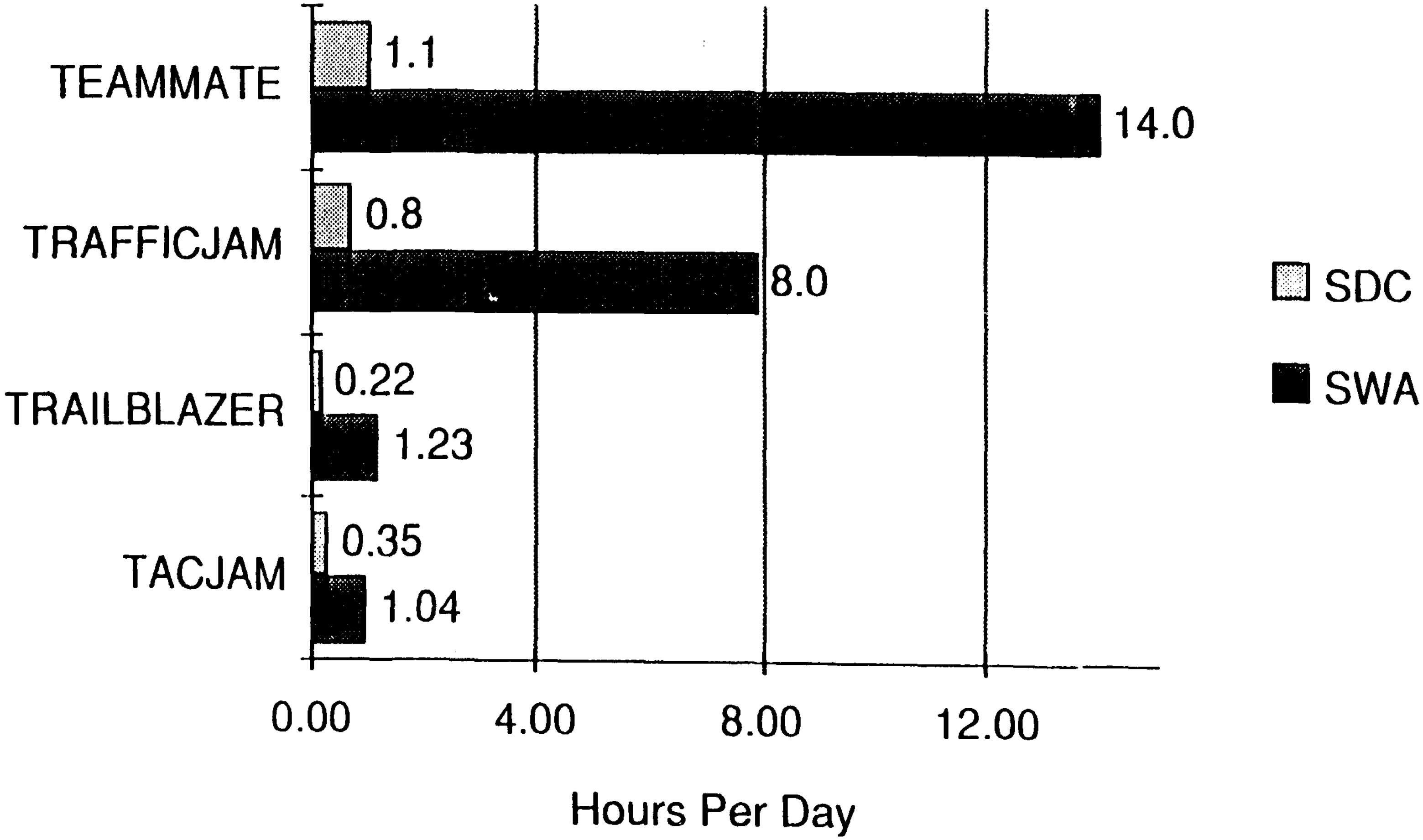
SYSTEM UTILIZATION



VEHICLE UTILIZATION

This is a look at the same kind of data for the vehicle. In this case, TRAILBLAZER and TACJAM vehicles were operated about one more hour per day than during the SDC program. However, the TEAMMATE and TRAFFICJAM vehicles were used significantly more in SWA than during the SDC program.

VEHICLE UTILIZATION



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BIT/BITE

BIT/BITE performed better in SWA than in the historical SDC Program except for TEAMMATE. Less reassuring is the fact that BIT/BITE still falls far short of the desired 95% capability. This data, incidentally, is limited to mission equipment only.

BIT/BITE

	SWA Events	SDC Historical
TEAMMATE	30.7%	31.9%
TRAFFICJAM	71.7%	60.3%
TRAILBLAZER	61.7%	52.1%
TACJAM	46.2%	41.6%
QUICKFIX	83.3%	60.3%

LRU FAILURE PREDICTION

This slide indicates that SDC data could have been used to predict failures in SWA with relative accuracy, had an estimate of the expected operational hours in SWA been provided. Assuming a reasonably accurate estimate of operational hours were provided for each system, SDC data could have been used to predict LRU failures within 10% of the actual SWA failures experienced in at least 72% of the cases. Stated numerically, given an SDC prediction of 10 failures, failures in SWA would not have exceeded 11 in 72% of the cases. In 81% of the cases no more than 13 failures would have occurred in SWA, and in 90% of the cases not more than 15 failures would have occurred. Information of this nature could be extremely valuable when planning support for future contingency operations.

LRU FAILURE PREDICTION

LRU Failure Predictions Could Have Been Made Prior to Deployment Based on SDC Failure Data

- Based on the Hours of Operation in SWA:
  - SWA LRU Failures were less than or equal to:
    - SDC plus 10% in 72% of Cases
    - SDC plus 30% in 81% of Cases
    - SDC plus 50% in 90% of Cases
- Assumption Must be Made of Expected Operational Hours Prior to Using SDC as a Prediction Model

BRIEFING OUTLINE

The next portion of the briefing will deal with findings and recommendations from SWA.

BRIEFING OUTLINE

- Introduction, Background and Methodology
- SWA Assessment
- SWA Findings and Recommendations
- SWA Identified Other Uses for SDC Data
- Future SDC Program Needs
- Recommendations

SPARING: LRUs

Some LRUs experienced a higher than predicted failure rate in SWA. High failure rates were compounded by the fact that some of the LRUs were not repairable in SWA. This slide points out the need to conduct additional failure analyses on selected LRUs, and the need to increase stockage levels of LRUs whose failure would cause the system to become NMC.

SPARING: LRUs

PROBLEM: LRUs With High Failure Rates in SWA

ANALYSIS:

- LRUs Failed More Often Than Expected
- Some LRUs Not Repairable in SWA
- LRUs Included: Radio Receiver R-2143, Radio Receiver R-2144, System Control Assy, Plasma Display, Thermal Printer, and Disk Drive Enclosure

RECOMMENDATIONS:

- Perform Failure Analysis of LRUs
- Increase Stockage Level of: Radio Receiver R-2143, Radio Receiver R-2144, System Control Assy, Plasma Display and Disk Drive Enclosure

ON-GOING ACTIONS:

- USACIMMC is in the Process of Performing a Failure Analysis on the R-2143 and R-2144 Radio Receivers

HIGH FAILURE LRUs

High failure LRUs are defined as those LRUs which had a failure rate in SWA of 140% or more than was expected and where the total number of failures of each LRU was at least 5 or more. High failure rate LRUs are shown here along with their predicted failure rates. The source of supply is also provided. Please note that three different types of plasma displays have been rolled into the numbers presented here.

HIGH FAILURE LRUs

	Expected Failures	Actual Failures	Source of Supply
Radio Receiver, R-2143	17	42	B46
Radio Receiver, R-2144	43	61	B46
System Control Assy	15	26	B46
Disk Drive Enclosure	01	14	B46
Thermal Printer	03	09	B46
Plasma Display (Three different models)	06	18	B16

LOW FAILURE LRUs

Low failure LRUs are defined as those where the actual failures are significantly lower than the number of expected failures. Several LRUs exhibited lower than predicted failure rates. All were B46 items, and all were on wheeled vehicles.

LOW FAILURE LRUs

	Expected Failures	Actual Failures	Source of Supply
SMU, TRQ-32	81	38	B46
Power Supply, TLQ-17A	28	06	B46
Transmitter, TLQ-17A	50	33	B46
Receiver, TLQ-17A	49	38	B46
Hydraulic Pump Assy, TRQ-32	27	17	B46
Mast Crown Assy, TRQ-32	16	06	B46

SPARING: CCAs

High failure rates of specific Circuit Card Assemblies (CCA) in SWA are shown on this slide. A portion of these were not repairable in SWA. As with the high-failure LRUs, we recommend a failure analysis be conducted and an increase of stockage levels in theater. IMMC has already performed failure analyses on several of the high failure CCAs.

SPARING: CCAs

PROBLEM: CCAs with High Failure Rates in SWA

ANALYSIS:

- CCAs Failed More Often Than Expected
- Some CCAs Not Repairable in SWA
- CCAs Included: Basic Power Modules, DC-DC Converter, Regulator, Amplifier Assy and Two Separate Power Supply CCAs

RECOMMENDATIONS:

- Perform Failure Analysis of CCAs
- Increase Stockage Level of: DC-DC Converter, Regulator, Amplifier Assy and Power Supply CCAs

ON-GOING ACTIONS:

- USACIMMC Has Performed Failure Analysis on Several of the High Failure CCAs

HIGH FAILURE CCAs

High failure CCAs are defined as those CCAs which had the highest failure rates in SWA. This chart shows a listing of the high failure CCAs and the source of supply of each. A failure analysis has been completed on the amplifier assy, TLQ-17A and an analysis is currently underway on the DC-DC converter.

HIGH FAILURE CCAs

	Failures	Source of Supply
Basic Power Modules, MLQ-34	30	B46
DC-DC Converter	18	B46
Regulator CCA, TRQ-32	17	S9G
Power Supply CCA, TRQ-32	13	
Amplifier Assy, TLQ-17A	10	B46
Power Supply CCA A5, MLQ-34	08	B46

COMMUNICATIONS

In the communications area, reliability and speed of voice communication was a major problem in SWA. The problem was especially acute for TRAFFICJAM because this system was used extensively for ESM operations, requiring a much higher volume of technical data traffic than that needed for ECM. Most of the data was passed by FM voice radio which became overloaded, showing conclusively that FM voice is too slow and unreliable for the ESM mission. Our recommendations are to review the feasibility of using data links for this type of traffic. Ideally, IEW data link systems would be interoperable, increasing battlefield responsiveness and flexibility. We are not aware of any actions ongoing to address this problem.

COMMUNICATIONS

PROBLEM: Reliability and Speed of Voice Communications

ANALYSIS:
- ESM Operations Dictated a Higher Volume of Technical Data Traffic
- FM Voice Radio Was Slow and Unreliable for Passing Data

RECOMMENDATIONS:
- Review Feasibility of Data Link for Systems Without This Capability
- All Data Link Systems Should be Capable of Interoperating with Each Other
- Common Architecture for Data Links is Preferable

ON-GOING ACTIONS:
- None

INTERCOM

Intercom systems were also a significant problem on all ground systems. Intercoms were difficult to maintain, and wiring was not standard among systems. The recommendation is that a failure analysis of IEW intercom systems be conducted, and that a more reliable and maintainable intercom system be installed on the IEW Common Sensor. Currently there are no ongoing actions to address the problem of which we are aware.

INTERCOM

PROBLEM: High Failure Rate and Poor Reliability of Intercom Systems

ANALYSIS:
- Intercoms Difficult to Maintain
- Wiring not Standard Between Systems
- Intercoms are a Problem on All Ground Systems

RECOMMENDATIONS:
- Perform Failure Analysis of IEW Intercom Systems
- Install a More Reliable and Maintainable System in IEWCS Systems

ON-GOING ACTIONS:
- None

LONG HAUL COMMUNICATIONS

Communicating over the long distances associated with desert warfare in SWA posed a significant problem for IEW line-of-sight communications. Every IEW system experienced technical problems with line-of-sight communications which were aggravated by the long distances between the sensors. Both voice and data link communications were affected. In addition, the partial fielding of SINCGARS resulted in some compatibility problems. It is recommended that a common radio architecture be established for IEW systems covering both long and short range communications requirements. Currently we know of no ongoing activity in this area

LONG HAUL COMMUNICATIONS

PROBLEM: Poor Reliability of Line of Sight (LOS) Communications in SWA

ANALYSIS:

- Every System Experienced Problems with LOS Communications
- Long Distances Between Sensors Aggravated Problem
- Both Data Link and Voice Communications Affected
- IEW Systems Experienced SINCGARS Compatibility Problems

RECOMMENDATIONS:

- Identify a Common Radio Architecture for Both Long Range and Short Range Communications
- Provide IEW Systems With Long and Short Range Capabilities

ON-GOING ACTIONS:

- None

TCAE OPERATIONS

TCAE operations experienced both procedural and personnel problems in SWA. Collectively, these problems slowed the rate of information flow to the extent numerous survey respondents identified the TCAE as a bottleneck. Personnel did not appear to have been well enough trained to cope with the multiple systems deployed in SWA. It is recommended that TRADOC review existing TCAE training requirements and operational procedures, and that an exportable training package be produced to assist units. Currently we aren't aware of any ongoing actions in this area.

TCAE OPERATIONS

PROBLEM: TCAE Personnel and Procedures

ANALYSIS:
- Procedures were a Bottleneck to Information Flow
- Personnel not Trained Enough on Multiple Systems
- Information Flow Slow and Sporadic

RECOMMENDATIONS:
- TRADOC Review TCAE Training, Personnel and Equipment Requirements
- Generate Exportable Training Package for Units
- Increase Unit Interoperability and Capability Training

ON-GOING ACTIONS:
- None

MESSAGE FORMATS

Message formats also posed a significant problem. Survey respondents felt that existing formats were too complex, required too much unnecessary information, were difficult to use, and slowed the exchange of data. It is recommended that a generalized message format be developed. This should include only minimum essential information so that input is easy and training time is minimum. No actions are currently underway on this item.

MESSAGE FORMATS

PROBLEM: Message Formats are Too Complex and Difficult to Use

ANALYSIS:
- Formats are Redundant
- Formats Include Too Much Information
- Formats Require Re-Entry of Information
- Sensors Rarely Send a Message to Levels Required by Formats

RECOMMENDATIONS:
- Systems Need a Generalized Message Format
- TRADOC Should Determine Minimum Information Required for a General Message Format

ON-GOING ACTIONS:
- None

PRIME MOVER: M1015A1 REPLACEMENT

The M1015A1 exhibited a series of problems in SWA. It was the highest failure rate item of the IEW tracked vehicle family, and was too slow to keep up with supported units. It is recommended that it be replaced with a faster, more reliable vehicle with a higher gross vehicle weight. In the interim, the TACOM LARs should be provided additional training so they can assist units in M1015A1 diagnosis. Additionally, unit sustainment training on the M1015A1 for unit Warrant Officers and NCO's should be provided to help units become self sufficient in this area. Currently we understand the TRAILBLAZER will be moved to 5-ton trucks, but no determination on a vehicle for TACJAM has been made.

PRIME MOVER: M1015A1 REPLACEMENT

PROBLEM: M1015A1 Vehicle Reliability and Capabilities

ANALYSIS:
- M1015A1 Cited as Highest Failure Item
- M1015A1 Was Too Slow for Supported Unit
- M1015A1 Not Reliable in SWA

RECOMMENDATIONS:
- Replace M1015A1 With a Faster and More Reliable Vehicle With a Higher Gross Vehicle Weight
- TACOM LARs Should Be Provided Training So They May Assist the Units in M1015A1 Diagnostics
- Provide Unit Sustainment Training on M1015A1 to Warrant Officers and NCOs

ON-GOING ACTIONS:
- TRAILBLAZER Will be Moved to 5 Ton Trucks
- No Determination on a Vehicle for TACJAM

PRIME MOVER:
M1028

The M1028 CUCV also experienced reliability and mobility problems. It is not as mobile as the M1037 vehicle. Our recommendation would be to replace all M1028 vehicles with M1037 vehicles. Currently the M1028 vehicles used with TRAFFICJAM have been replaced and a decision has been made to replace them for TEAMMATE during a future ECP. Costs may impede this action.

PRIME MOVER: M1028

PROBLEM: M1028 Reliability and Mobility

ANALYSIS:
- Units Experienced Problems Supporting M1028
- M1028 Was Not as Mobile as the M1037 Series Vehicle

RECOMMENDATIONS:
- Replace M1028 With M1037 Series Vehicle

ON-GOING ACTIONS:
- M1028 Vehicles Used in TRAFFICJAM Have Been Replaced
- M1028 Vehicles in TEAMMATE Are to Be Replaced During a Future ECP to the System

POWER SOURCE:
60 KW GENERATOR

The 60KW on board generator of the TACJAM proved to be a significant supportability problem. The generator exhibited a high number of failures and the mechanics were not proficient at identifying and correcting these problems. In addition there was little technical assistance available to support unit mechanics. Again exportable training packages should be provided to the TROSCOM LARs to assist them in the training of unit mechanics. Finally, sustainment training on the 60KW generators should be provided to all IEW Warrant Officers and NCOs so they can better manage the problem. Currently no actions are underway in this area.

POWER SOURCE: 60 KW GENERATOR

PROBLEM: Supportability of the 60 KW On-Board Generator

ANALYSIS:
- 60 KW Generator a High Failure System
- Mechanics Not Proficient in Identification of Problems
- Little Assistance Available to Support Unit Mechanics

RECOMMENDATIONS:
- Provide Exportable Training Package to TROSCOM LARs so They May Provide Training to Unit Mechanics
- Provide Unit Sustainment Training on 60 KW Generator to Warrant Officers and NCOs

ON-GOING ACTIONS:
- None

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POWER SOURCE:
200 AMP KIT

The 200 AMP Kit on the M1037 vehicle proved to be a major problem because maintenance personnel lacked expertise in diagnosis and repair of the Kit. Neither the unit mechanics nor the TACOM LARs were well enough trained to effectively handle this problem. Recognizing that the 200 AMP Kit will be a standard power component for the IEW M1037 systems as well as for MSE and ambulances, recommend that TACOM LARs be made available to train supported units on the maintenance of the 200 AMP Kit. It is also recommended that TRADOC, in a parallel effort, insure MOS training is sufficient and that sustainment training on the 200 AMP Kit be provided to IEW Warrant Officers and NCOs. Currently no action is underway in this area.

POWER SOURCE: 200 AMP KIT

PROBLEM: Lack of Expertise in Diagnosis and Repair of 200 Amp Kit

ANALYSIS:
- Unit Mechanics Not Well Trained in 200 Amp Kit
- TACOM LARs Not Trained Well Enough to Provide Assistance
- 200 Amp Kit Will Be Standard Power for HMMWV Vehicle Systems

RECOMMENDATIONS:
- TACOM LARs Should Be Trained and Available to Supported Units
- TRADOC Should Insure MOS Training is Sufficient
- Provide Unit Sustainment Training on 200 Amp Kit to Warrant Officers and NCOs

ON-GOING ACTIONS:
- None

BIT/BITE

In SWA BIT/BITE was used extensively but was not sufficiently user friendly and did not go into enough diagnostic depth. Operators also expressed the need to obtain all diagnostic information from BIT/BITE without being required to look up codes in *supplemental materiel*. Recommendations are to expand the BIT/BITE to make it faster, more effective and more user friendly. Error codes should be in plain language. In the interim, error codes on laminated cards attached to displays of the current system would be useful. The QUICKFIX ILS Manager is currently working to provide laminated error code cards in the immediate future. Additionally, we understand an upgraded BIT/BITE is being included in the IEW Common Sensor System.

BIT/BITE

PROBLEM: BIT/BITE is Not User Friendly and Does Not Go into Enough Depth

ANALYSIS:
- Operators Would Like to Diagnose the Problem
- Current BIT/BITE Requires Look-Up Codes
- Codes Are Not Always Available

RECOMMENDATIONS:
- Expand BIT/BITE to Make it More User Friendly, Faster and Efficient
- Error Codes Should Be in Plain Language
- Provide Error Codes on Laminated Cards Attached to Units in Current Systems

ON-GOING ACTIONS:
- QUICKFIX ILS Manager to Provide Laminated Card
- Upgraded BIT/BITE Is Included in IEWCSS

OPERATIONS:
INCREASED HF CAPABILITY

Operations in SWA clearly identified the requirement for IEW systems to operate in the HF portion of the frequency spectrum. Some systems will require modification to operate over a broader frequency range, but HF antennas represent a significant technical challenge to such an effort. It was recommended that the frequency coverage of IEW systems be broadened and that antennas for systems upgraded to HF be provided. Currently the PM Signal Warfare is considering a new HF antenna for TRAFFICJAM, and the recommendations are being reviewed for possible inclusion in the IEWCSS.

OPERATIONS: INCREASED HF CAPABILITY

PROBLEM: Need for Increased High Frequency Capabilities

ANALYSIS:
- Systems Need Broader Frequency Coverage
- Systems Need Antennas to Cover Broader Frequency Range

RECOMMENDATIONS:
- Provide HF Antennas to Systems Requiring Upgrade of HF Antenna Capability
- Broaden Frequency Coverage of Systems

ON-GOING ACTIONS:
- PM-SW is Considering New HF Antenna for TRAFFICJAM
- Recommendations Are Being Reviewed for Possible Inclusion in IEWCSS

SYSTEM ENHANCEMENTS: TAPE RECORDER

A system enhancement to improve the existing tape recorder was probably the single most mentioned item by survey respondents. The current device is difficult to maintain and is not compatible with commercial tape recorders. Recommend the current recorders be replaced with a standard tape recorder. Currently USACIMMC is procuring a standard replacement tape recorder for all systems. PM SW is currently procuring a Sony tape recorder as an interim replacement for some systems.

SYSTEM ENHANCEMENTS: TAPE RECORDER

PROBLEM: Tape Recorder Not Well Accepted by Operators

ANALYSIS:
- Current Tape Recorder is Difficult to Maintain
- Current Tape Recorder is not Compatible With Commercial Tape Recorders

RECOMMENDATIONS:
- Replace the Tape Recorder with IEW Standard Tape Recorder That is Compatible With Commercial Recorders

ON-GOING ACTIONS:
- USACIMMC is Currently Procuring A Standard Replacement Tape Recorder
- PM-SW Currently Procuring Sony Recorder as Interim Replacement for Some Systems

SYSTEM ENHANCEMENTS: GLOBAL POSITIONING SYSTEM

Another system enhancement that was widely requested was the Global Positioning System (GPS). DF systems must be precisely located for accurate fixes. GPS can obviously do this for all systems, and can be integrated with the inertial navigation system on QUICKFIX. It is recommended that GPS be procured and integrated into all IEW systems. GPS is currently being procured for TRAILBLAZER and TEAMMATE. QUICKFIX has identified it as a requirement but funding is a question. It is included as a requirement for the IEWCSS.

SYSTEM ENHANCEMENTS: GLOBAL POSITIONING SYSTEM

PROBLEM: Need for Precise Position Locations

ANALYSIS:
- DF Systems Must be Precisely Located for Accurate Fixes
- GPS Will Precisely Locate Sensor Position
- GPS Can be Integrated With Inertial Navigation for QUICKFIX

RECOMMENDATIONS:
- Procure and Integrate GPS With all IEW Systems

ON-GOING ACTIONS:
- GPS Currently Being Procured for TRAILBLAZER and TEAMMATE
- QUICKFIX Has Identified This As a Requirement, Funding in Question

BPA RESULTS

In summary the BPA results showed the need for: Twenty seven maintenance actions; Twenty seven design actions; Nine requirements reviews; Six training improvements; and Seven increased support actions.

BPA RESULTS

- Maintenance Actions Are Needed - 27 Actions
- Design Actions Are Needed - 27 Actions
- Requirements Review Required - 9 Actions
- Training Improvements Are Needed - 6 Actions
- Increased Support Is Required - 7 Actions

RECOMMENDED USES OF SWA FINDINGS

This slide shows who would be best qualified to address the actions identified in the Battle Performance Assessment. You can see the full spectrum of organizations required to handle these issues.

RECOMMENDED USES OF SWA FINDINGS

- Maintenance Improvement - USACIMMC/CECOM
- System Design Changes - PEO-IEW/PM-SW/Level II Managers
- Requirements Review - TRADOC
- Improved Training - TRADOC
- Better Support for the Soldier - USACIMMC, CECOM, TACOM, TROSCOM

BRIEFING OUTLINE

We now will look at other uses for SDC data which were identified by the SWA BPA.

BRIEFING OUTLINE

- Introduction, Background and Methodology
- SWA Assessment
- SWA Findings and Recommendations
- SWA Identified Other Uses for SDC Data
- Future SDC Program Needs
- Recommendations

SWA-SDC RELATIONSHIP: SPARES

We found that actions taken previously which had been based on SDC information were validated by performance results from the SWA combat environment. This slide shows that spares buys, reduced for TRAFFICJAM and TEAMMATE prior to SWA, had no negative impact on operational availability. In fact, these systems had the highest operational availability rates among those surveyed. SDC data supported the decision to bring the repair echelon for the TEAMMATE dipole antenna element down to the unit level. Operations in SWA showed that no NMC days were attributed to this item. These examples illustrate that SDC data can be used to both increase operational availability, and to reduce costs.

SWA-SDC RELATIONSHIP: SPARES

- AN/TLQ-17A: Spares Buy Reduced by $ 7.0 Million
  - System Had Highest OA of Any IEW System in SWA
- AN/TRQ-32: Spares Buy Reduced by $ 2.0 Million
  - System Had 2nd Highest OA of All IEW Systems in SWA
- AN/TRQ-32: Dipole Antenna Element
  - SDC Identified This Item for Replacement at Lower Echelon of Repair
  - Parts Provisioned
  - No NMC Days in SWA for This Item

OTHER SWA-SDC RELATIONSHIPS

Earlier in this briefing we discussed why it was essential to establish an OA availability baseline for the BPA; how SDC data could be used for failure prediction; the importance of monitoring BIT/BITE effectiveness; and the need to conduct failure analysis. We also showed the close correlation between the SDC and SWA data in these areas.

OTHER SWA-SDC RELATIONSHIPS

The Following Areas Were Addressed Earlier in the Briefing

- Establishment of an OA Baseline
- Failure Prediction
- BIT/BITE Effectiveness
- Needed Failure Analysis

SWA IDENTIFIED
USES FOR SDC DATA

Review of SWA failures indicates that SDC has the capability to identify high failure items so that in theater spare levels and repair capabilities can be tailored to the anticipated demand. Additionally, SDC can support contingency planning by identifying transportation requirements and CONUS depot workloads required to support wartime operations prior to a conflict.

SWA IDENTIFIED USES FOR SDC DATA

War Planning:

- Identify High Failure Items
- Adjust In-Theater Spare Levels and Repair Capabilities
- Plan Transportation Needs for Replacement of High Failure Items Not Repairable in Theater
- Plan Workload at Stateside Depot for Quick Turn-Around of High Failure Items

SWA IDENTIFIED USES FOR SDC DATA

Although the desert environment encountered in SWA was markedly different from the "normal" operational settings, environmentally induced failures could have been predicted using SDC data. SDC data could identify environmentally unique failure trends to support follow-on failure analysis and corrective actions. Tropical and cold weather environments are two areas on which SDC should concentrate.

SWA IDENTIFIED USES FOR SDC DATA

Environmental Impact:

- Compare Failure Data From Different Environmental Locations
- Identify Environmental Specific Problems
- Perform Analysis on Each Problem
- Make Appropriate Changes Based on Analysis
  - Changes in Sparing
  - ECPs

BRIEFING OUTLINE

We will discuss future SDC program needs.

BRIEFING OUTLINE

- Introduction, Background and Methodology
- SWA Assessment
- SWA Findings and Recommendations
- SWA Identified Other Uses for SDC Data
- Future SDC Program Needs
- Recommendations

REPARABLES MANAGEMENT NEEDS

With the reallocation of spares fiscal accountability scheduled to occur on 1 April 92, reparables management will have some significant needs which can be met through the use of the SDC program. To do this effectively, historical spares usage data must be recorded prior to 1 April. After the changeover, actual spare usage must be monitored so that changes in LRU and CCA usage can be identified. This information then can be used to assist units in procuring the right spares, and assist IMMC in purchasing the correct number and type of spares.

REPARABLES MANAGEMENT NEEDS

- Document Past Spares Usage Prior to 1 April 1992
- Monitor Actual Spares Usage After Changeover
- Refine Number of High Usage LRUs and CCAs After Changeover
    - Assist Units in Projecting Spares Needs
    - Use Data to Project USACIMMC Spares Buys

ISSUE
INVESTIGATION NEEDS

As a result of the SWA experience, we found that surveys point out system specific needs and issues that are often not identified as critical by the development or readiness communities. With SDC in place, sample surveys can be done periodically in selected areas and on specific systems. Derived information can be provided responsively to key personnel, permitting appropriate action to be taken in a timely manner.

ISSUE
INVESTIGATION NEEDS

SWA Surveys Surfaced Specific System Needs

- Periodic Survey of Units for Specific Issues on Systems and Sparing
- Provide Results to Key Personnel Quickly
- Use Data to Determine Needed Actions
  - Maintenance
  - Technical Manuals
  - Training
  - ECPs/System Design

PERIODIC REVIEW NEEDS

Collecting SDC data on key systems provides an opportunity to inform key readiness, acquisition, and user personnel on system specific findings and recommendations, and an opportunity to initiate appropriate corrective actions. Pre-briefings for mid-level managers from the three communities would foster the continued close cooperation among all players. The data can also be used to support the ECP and PIP prioritization processes.

PERIODIC REVIEW NEEDS

- To Key Readiness, Acquisition and User Personnel
- Provide Findings and Recommendations
- Identify Appropriate Corrective Actions
- Use Data to Support ECP and PIP Prioritization Process

SDC CONTINUATION NEEDS

Where should SDC focus its follow-on efforts? Additional systems, such as TCAC with minimum data available, will be coming under the jurisdiction of IMMC, as well as IEW Common Sensor with no data base. QUICKFIX has a very small database currently, and requires additional data collection. With SDC data, baselines could be established for these systems. Other systems currently in the field such as TRAFFICJAM, TRAILBLAZER and TEAMMATE have several PIPS which are changing the operational nature and thereby the maintenance, sparing and training requirements of these systems. This changing information needs to be captured so that informed decisions can be made. In addition, information from these areas would be fed into the maturing design of the IEWCSS, thereby avoiding mistakes made in the past. As noted on an earlier slide, SDC data contributes to the sparing efficiency and saves dollars, a particularly valuable contribution, given the trends in funding levels. Last, but not least, is the positive contribution this data could have on preparing for wartime operations.

SDC CONTINUATION NEEDS

- Additional Systems - Minimal Usable Data
- New System - Minimal Information in Database
- Systems PIPs - Change Information in Database
- System Design - Continuing Impact
- Reparables Management Procedures - Impact on Spares and Funding
- Preparation for Wartime Operations

BRIEFING OUTLINE

The final section of this briefing deals with recommendations.

BRIEFING OUTLINE

- Introduction, Background and Methodology
- SWA Assessment
- SWA Findings and Recommendations
- SWA Identified Other Uses for SDC Data
- Future SDC Program Needs
- Recommendations

RECOMMENDATIONS BASED ON SWA ASSESSMENT

Observations from the SWA assessment lead to the recommendations as shown on this slide. The SDC program will continue to be a very effective tool. Periodic cross system evaluations and periodic SDC reviews with key personnel of all the communities involved are recommended. Additionally, recommend the tasking and funding of this program be shared.

This concludes the briefing.

RECOMMENDATIONS BASED ON SWA ASSESSMENT

- SDC Program Be Continued for Selected Systems
- Conduct Periodic Cross System Evaluations
- Conduct Periodic SDC Reviews for Key PEO-IEW, CECOM, USACIMMC and TRADOC Personnel
- Tasking of SDC Program be Shared by USACIMMC and PEO-IEW
- Funding of SDC Program be Shared by USACIMMC and PEO-IEW